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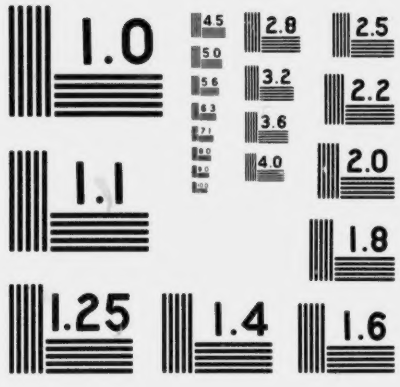
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Projects 918 and 1443 tried to determine the relationships between elements of the secondary school plant and certain characteristic behaviors of the students, teachers and administrators in these buildings. The problems were whether the building design and utilization had any influence on the interaction of school personnel and whether the building design and utilization had any influence on the attitudes of school personnel toward themselves and others, toward the school and its architecture.

The relationship between four building factors and seven factors of personnel interaction and attitudes was examined. Thirty-four contemporary secondary schools were used. The four building factors were size, design, utilization, and type. The seven personnel factors included frequency and patterns of interaction, attitudes toward self, school, and architecture, problems perceived by school personnel, and efficacy of personnel interaction.

Results showed that the size of the school was the single dominant factor regarding school personnel interaction and attitudes. However the influence of school size could be modified by the related building factors of design and utilization.

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RELATIONSHIPS AMONG SCHOOL DESIGN, UTILIZATION, PERSONNEL INTERACTION, AND ATTITUDES

Cooperative Research Project

No. 618: The Relationship Between School Design and Utilization and Personnel Interaction

No. 1443: Effects of School Building Environment on Personnel Interaction and Attitudes

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RELATIONSHIPS AMONG SCHOOL DESIGN UTILIZATION, PERSONNEL INTERACTION, AND ATTITUDES

Final Report
of
Cooperative Research Project

No. 918: The Relationship Between School Design and Utilization and Personnel Interaction

and

No. 1443: Effects of School Building Environment on Personnel Interactions and Attitudes

Karl T. Hereford. Project Director
Stanley E. Hecker. Co-Investigator

Bureau of Educational Research Services
College of Education
Michigan State University
East Lansing, Michigan

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HIGH SCHOOLS VISITED PRIOR TO FINAL SELECTION

	NAME OF HIGH SCHOOL	CITY	STATE
1.	Hueytown High School	Birmingham	Ala.
2.	Robert E. Lee High School	Montgomery	Ala.
3.	Catalina High School	Tuscon	Ariz.
4.	Sunnyside High School	Tuscon	Ariz.
5.	Glendora High School	Azura	Cal.
6.	Bellflower High School	Bellflower	Cal.
7.	Mayfair High School	Bellflower	Cal.
8.	Westmore High School	Daly City	Cal.
9.	Narbonne High School	Los Angeles	Cal.
10.	Niram Johnson High School	Sacramento	Cal.
11.	Hillsdale High School	San Mateo	Cal.
12.	East Hartford High School	East Hartford	Conn.
13.	Andrew Warde High School	Fairfield	Conn.
14.	Manchester High School	Manchester	Conn.
15.	Old Saybrook Junior-Senior High School	Old Saybrook	Conn.
16.	Newark Senior High School	Newark	Del.
17.	Columbus High School	Columbus	Ga.
18.	Borah High School	Boise	Idaho
19.	Maine Township West High School	Des Plaines	Ill.
20.	Niles Township High School	Skokie	Ill.
21.	Keokuk Community High School	Keokuk	Iowa
22.	Shawnee-Mission East High School	Merriam	Kan.
23.	Franklin County High School	Frankfort	Ky.
24.	Duachita High School	Monroe	La.
25.	N. Hagerstown High School	N. Hagerstown	Md.
26.	S. Hagerstown High Schook	S. Hagerstown	Md.
27.	Dearborn High School	Dearborn	Mich.
28.	Kimball High School	Royal Oak	Mich.
29.	Greenville High School	Greenville	Miss.
30.	Van Horn High School	Kansas City	Mo.
31.	Kennett High School	Kennett	Mo.
32.	River View Gardens Senior High School	St. Louis	Mo.
33.	Helena High School	Helena	Mont.
34.	Columbus High School	Columbus	Neb.
35.	Carringer High School	Charlotte	N.C.
36.	West Charlotte High School	Charlotte	N.C.
37.	Fayetteville High School	Fayetteville	N.C.
38.	Ragsdale High School	Greensboro	N.C.
39.	Mandan High School	Mandan	N.D.
40.	Winnacunnet High School	Hampton	N.H.

41.	Hanover Park Regional High School	Hanover	N.J.
42.	River Dell Regional High School	Oradell	N.J.
43.	Passaic Senior High School	Passaic	N.J.
44.	Sandra High School	Albuquerque	N.M.
45.	Horace Greeley High School	Chappaqua	N.Y.
46.	W. Tresper Clarke High School	E. Meadow, L.I.	N.Y.
47.	Hudson Falls Junior-Senior High School	Hudson Falls	N.Y.
48.	John Jay High School	Katonah	N.Y.
49.	Massena Central High School	Massena	N.Y.
50.	Shaher Junior-Senior High School	Newtonville	N.Y.
51.	Penfield High School	Penfield	N.Y.
52.	Soarsdale High School	Scarsdale	N.Y.
53.	Linton High School	Schenectady	N.Y.
54.	Syosset High School	Syosset	N.Y.
55.	Glenwood Senior High School	Canton	Ohio
56.	Fairmont High School	Kettering	Ohio
57.	Norman High School	Norman	Okla.
58.	Northwest Classen High School	Oklahoma City	Okla.
59.	Bend High School	Bend	Ore.
60.	Woodrow Wilson High School	Portland	Ore.
61.	Hempfield High School	Greensburg	Pa.
62.	A.C. Flora High School	Columbia	S.C.
63.	Greer High School	Greenville	S.C.
64.	Lester High School	Memphis	Tenn.
65.	Abilene High School	Abilene	Tex.
66.	Bellaire Junior High School	Bellaire	Tex.
67.	San Angelo High School	San Angelo	Tex.
68.	George Washington High School	Dansville	Va.
69.	Hampton High School	Hampton	Va.
70.	Middlebury High School	Middlebury	Vt.
71.	Mark Morris High School	Longview	Wash.
72.	Mercer Island High School	Mercer Island	Wash.
73.	Mt. Rainier High School	Seattle	Wash.
74.	Seattle High School	Seattle	Wash.
75.	Shoreline High School	Seattle	Wash.
76.	Shadde Park High School	Spokane	Wash.
77.	Brookfield High School	Brookfield	Wisc.

RELATIONSHIP OF SCHOOL BUILDING DESIGN AND UTILIZATION AND PERSONNEL INTERACTION AND ATTITUDES

The secondary school in the United States warrants special study. It provides terminal education for a large proportion of the school age population. It is the jumping off point for the growing number of college students. It also represents a large economic investment on the part of the American public.

The purpose of Projects 918 and 1443 was to determine the relationships, if any, between elements of the secondary school plant and certain characteristic behaviors of the students, teachers and administrators who occupy those buildings. Specifically, the study was designed to produce useful information on two basic questions. These were:

(1) What influence, if any, does building design and utilization have upon the interpersonal interaction of school personnel? Can the patterns of interpersonal interaction be modified by modifications in building design or utilization?

(2) What influence, if any, does building design and utilization have upon the attitudes of school personell toward themselves and other people, toward their school and toward the architecture of the school? To what extent, if any, can these attitudes be modified by changes in school design and utilization?

Numerous claims have been advanced in the school plant literature which relate - - in one way or another - - certain design types (e.g. "campus" plan) or certain utilization types (e.g. "school-within-school") with desired interpersonal behavior. A secondary purpose of the Project was to test the adequacy of these observations.

1. Overview of the Study

The relationship between four building factors and seven factors of personnel interaction and attitudes were examined in this study. The study was conducted in 34 contemporary secondary schools selected from a nation-wide survey. The schools were "matched" in accordance with fifteen factors - - in order that certain characteristics of the buildings themselves would remain the only significantly different aspects of the schools, hence permit comparison, in general, the "matching" was successful; however, the 34 schools - - while representative of new schools which were constructed in suburban and metropolitan centers - - were not fully representative of all secondary schools constructed and occupied during the period of 1954 and 1960.

Four building type factors were examined. These were:

(1) Size of school:

The 34 schools were categorized inton three groups by their "average per grade enrollment": large, medium and small. Large schools were those which enrolled more than 468 pupils per grade. Small schools were those which enrolled less than 285 pupils per grade.

(2) Design of school:

The 34 schools were also categorized by their principal design element, that degree of "compactness". Two types were created: "campus" design and "compact" design.

(3) Utilization of school:

The schools were grouped in accordance with two principal plans of building utilization: "School-within-school" plan and "Subject-area" plan. A "Grade level" plan of utilization was also examined.

(4) Type of school building:

The schools were further grouped by building type in which the two principal building characteristics of design and utilization were combined in different ways. Five types were examined:

Type I: Compact: School-within-School
Type II: Compact: Subject Area
Type III: Campus: School-within-School (SWS)
Type IV: Campus: Subject Area
Type V: Campus: Grade Level.

The sample of 34 schools unavoidably included a bias by size of enrollment, hence a special method of analysis was employed in order to determine the influence of other building factors independent of size of school.

Seven interaction and attitude factors were examined; first, for their relationship with school size and, subsequently, for their relationship with each of the other building factors. These were:

I. Frequency of interpersonal interaction among school personnel.

II. Patterns of interpersonal interaction among school personnel.

III. Problems perceived by school personnel and the sources of help sought on these problems.

IV. Efficacy of interpersonal interaction among school personnel.

V. Attitudes toward self and others.

VI. Attitudes toward the school as an institution.

VII. Attitudes toward the school architecture.

Response data were obtained from teachers, students and administrators of the 34 schools to 16 different instruments specially constructed for the study. Of the nearly 40,000 total responses over 85% were fully completed and employed in the study. The cost of producing the data was approximately 50 cents per completed response.

2. Summary of Results

The major conclusions to be derived from the study are:

Size of school is the single dominant factor with respect to school personnel interaction and attitudes.

The influence of size of school as a factor can be modified, however, with respect to some aspects of interaction and attitude by related building factors of design and utilization.

There is no evidence, in interaction and attitude however, to support a contention that design is a major factor among the 34 schools - - independently of school size or plan of utilization. This should not be construed to mean that design cannot be a factor, for such obviously is the case under experimental conditions.

There was some evidence to support a contention that plan of building utilization is related to interaction and to attitudes. However, size of school dominates both design and utilization factors in most analyses.

There is also highly suggestive evidence that particular combinations of design and utilization elements, i.e. building types, can modify the influence of size of school. On the basis of the evidence in this study, it would appear that the School-within-School plan of utilization - - whether of grade level or non-grade level distribution - - when housed in a campus plan provides certain advantages with respect to desired patterns of interaction and attitudes not revealed in other types. The sample of schools, however, did not afford a full testing of these tentative conclusions; for the moment, the advantages of such design-utilization solutions can be attributed only to schools of moderate level enrollments.

The chief results of the study may be summarized by building factors as follows:

A. Size of School

Factor	Large Schools	Small Schools
1. Total frequency of interaction	Less	More
2. Number of established friendships among school teachers	More	Less
3. Number of established friendships among students	Less	More
4. Diversity of cross-class choices among student friends	More	Less

5. Accuracy of perceptions of student leadership	Less	More
6. Diversity of personnel problems	More	Less
7. In-school sources of help on problems	Less	More
8. Accuracy of teachers' knowledge of students	Less	More
9. Institutional acceptance	More	Less
10. Degree of integratedness of the school as a whole	Less	More

Size was not found to be a critical factor with respect to these relationships:

1. **Peer interaction among teachers.**
2. **Structure of student leadership (by sex).**
3. **Diversity of student leadership (by grade level).**
4. **Administrators' knowledge of teachers.**
5. **Self-other acceptance of administrators.**
6. **Self-other acceptance of teachers.**
7. **Self-other acceptance of students.**
8. **Institutional acceptance of teachers.**
9. **Aesthetic attitudes of administrators.**
10. **Aesthetic attitudes of teachers.**

B. Design of School

School design was demonstrated to be a contributing factor - - independent of school size - - in only two relationships. These were:

1. **Accuracy of students' perceptions of student leadership structure; students in campus buildings were generally less accurate in their perceptions of student leadership structure.**
2. **Dispersion of student leadership structure by grade level; student leadership was generally more concentrated in one or two grade levels in campus buildings.**

For all other relationships, analyses by school design produced essentially the same result as analysis by school size. In other words, the effect, if any, of school design could not be isolated from the influence of size of school.

C. Plan of Building Utilization

For the majority of relationships, the plan of building utilization as a factor in interaction and attitude could not be isolated from the factor of school enrollment. However, within schools of moderate enrollment, the plan of utilization was critical in these relationships:

1. Diversity of personnel problems reported by teachers; teachers in SWS consistently reported fewer problems.
2. Sources of help on problems reported by teachers; teachers in SWS consistently turned to peers for assistance, whereas teachers of Subject-area schools turned to school officials.
3. Sources of help on problems reported by students; students in SWS consistently turned to official school personnel for assistance; students in Subject-area schools turned to non-official sources.
4. Aesthetic appreciation of building; teachers is SWS reported their buildings to reflect fewer "human qualities" than did teachers in Subject-area schools.
5. Among high-interacting students, there is a greater degree of peer acceptance among students of SWS than among those in Subject-area schools, regardless of school size. To a degree not quite significant, there is also a greater proportion of students both accepting of self and others in SWS than in Subject-area schools, regardless of school size and the socio-economic level of students.

D. Types of Buildings

Of the five types of buildings examined, only two were related significantly with certain interaction and attitude factors independently of other factors. These were the Type III and Type V buildings. Both were of campus design. Both were forms of SWS plan of utilization, the Type V plan, however, grouping students into "little schools", each consisting of a separate grade level.

(1) Type III Schools

1. Reported significantly more total interaction among personnel, independently of school size.
2. Served as a more significant source of established friendships for students.
3. Served as a more significant source of help to students on problems reported by students.

4. Provided a significant source of help by peers on problems reported by teachers.

5. Teachers, however, reported that the aesthetic quality of their SWS buildings were less satisfying than that reported by teachers in other types of facilities.

6. Students in SWS buildings also chose their best friends from a less diverse class structure than in other schools; characteristically they chose friends from members of their own socio-economic class or from a class lower.

7. Among the high interacting students of Type III schools, there was appreciably more peer acceptance than expected. There was also more (not quite significant) more acceptance of self and others among the same students.

(2) Type V Schools

The Type V schools were related to six factors of interaction and attitude independently of other factors. These were:

1. Cross-class choice of students' best friends; in the Type V school, there was characteristically an "upward" trend in the choice of best friends, that is: students generally chose their best friends from a socio-economic class higher than their own.

2. Accuracy of students' perception of student leadership; in the Type V school, students were accurate in their perceptions even though the factors of size, compactness and leadership dispersion identified with this school type were negatively arrayed.

3. Accuracy of teacher knowledge of students; teachers in the Type V school - - significantly more than expected - - were accurate in their knowledge of students. Only the Type III school reported higher accuracy.

4. Acceptance of the school as an institution; teachers in the Type V school - - and in no other - - were reported to be accepting of their school as a basically adequate and worthy institution.

5. Diversity of problems reported by teachers; teachers in the Type V school reported significantly fewer problems than teachers in other building types.

6. Aesthetic quality of building; teachers in the Type V building perceived more "human qualities" in their school architecture than teachers in other buildings.

In addition to the summary of results presented above the study revealed a few other potentially important relationships. These are:

1. There is a relationship between the level of personnel interaction and the extent of self-other acceptance among personnel, regardless of the socio-economic level of personnel. Specifically, it was determined that:

   (a) high interacting students were self-accepting;

   (b) low interacting students were self-rejecting.

2. Among high interacting students (regardless of socio-economic level) size of school is related to self-other acceptance. Specifically, it was determined that:

   (a) Significantly more high-interacting students in schools of moderate size were accepting both of self and of others.

   (b) Significantly more high interacting students in schools of small enrollments were accepting of self but rejecting of others.

3. When eight factors which purport to measure the degree of integratedness of the school were examined, size of school was found to be related. Specifically, schools of moderate enrollment appeared to be most highly integrated; schools of large enrollment the least integrated; schools of small enrollment occupied a median position.

Despite obvious limitations in the study, several potential implications can be advanced. These are:

1. It seems clear that one key to attitude formation in secondary schools is the factor of interpersonal interaction. Hence, those building factors which can be manipulated to control interaction may be expected to realize a desired effect upon personnel attitudes.

2. Size of school appears to be a dominant factor in most relationships involving interaction. Hence, studies which are designed specifically to treat directly with school size would seem to be the next step in the attack upon this general problem. At the moment, schools which enroll 300 to 450 students per grade appear to offer the best compromise to attain high personnel interaction and the development of positive interpersonal attitudes.

3. The negative relationship between schools of large enrollment and the degree of personnel interaction was not demonstrated to be affected by different design and/or utilization solutions. However, the SWS plan of utilization and campus design did appear to reinforce these behaviors in schools of moderate enrollment, each with exceptions. The possibilities, however, require further study, particularly through design of experiment.

4. Unanswered by this study are numerous questions. The most significant of these is this: how persistent are the patterns of interaction and attitudes described by means of this single measurement activity?

Would similar results obtain if the instrumentation was reapplied sequentially each year or each two years? How compelling is the supporting school community as a source of values related to personnel interaction and attitudes? Since the nature of the communities in which this study was conducted is dynamic and changing, to what extent if any can the design-utilization components of the school be expected (1) to contribute to the formation of commonalities in diversely constituted communities or (2) to diversify attitudes of students in culturally integrated communities. Although the socio-economic levels of personnel in this study were measured and controlled, the large number of unknowns mitigates against any genuine claims for the school as an independent and causative factor in personnel behavior.

BIBLIOGRAPHY

There are 10 references listed in the final report.

Chapter 2

RESEARCH DESIGN

The research involved five major steps. These were:

(1) delineating population to be studied;

(2) developing instrumentation;

(3) administering instruments;

(4) testing classification hypotheses, and

(5) testing operational hypotheses and analysis of results.

The five operations are described as follows:

1. Population of Schools

Thirty-four new secondary schools were selected for study. All students, teachers and administrative-service personnel who were present in these schools on the day of survey testing were included in the study.

The manner in which the schools were classified, identified and selected is described in the following sections.

A. Classification of Schools

The group of 34 schools ultimately selected conformed to two basic criteria:

(1) They should differ consistently with the design and utilization factors under study, and

(2) Schools included within each of the design and utilization types, should be comparable with respect to related factors.

For the latter criterion, several factors were considered to be important. These were:

(1) geographic location,

(2) type of community,

(3) size of district enrollment,

(4) size of school enrollment,

(5) expenditure level of the district,

(6) proportion of transported students,

(7) proportion of the school's graduates attending college,

(8) number of full time faculty members,

(9) proportion of male faculty members,

(10) number and duration of class periods,

(11) proportion of students enrolled in different types of school programs,

(12) size and type of school site,

(13) number and types of school building spaces,

(14) principal's estimate of building type and

(15) principal's estimate of the school's pattern of building utilization.

A special inventory -- "study of effects of Building Design and Utilization upon high school staff and student personnel" - - was constructed for this purpose. A copy is included in Appendix A.1.

To classify school buildings, the following difinitions were employed:

(1) The design factor, "compactness", was divided into types according to the amount of roof area per enrolled student. Three general types resulted:

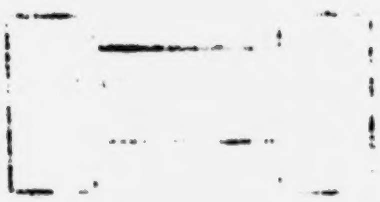
I. A building characterized by a minimum of roof area per pupil, normally multi-story which was labelled, "Compact" Type.

II. A building characterized by a maximum of roof area per pupil, normally comprised of a series of one story building units arranged in clusters around a central administrative unit. This was labelled, "Campus" Type.

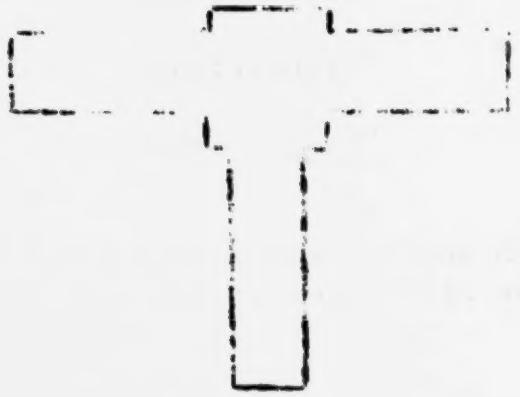
III. A building which provided a roof area per pupil intermediate that of Types I and II; normally this building is characterized by a central administrative unit from which project two or more "fingers" or "wings". This was labelled, "Transitional" Type.

The constructed types are represented by these rough drawings:

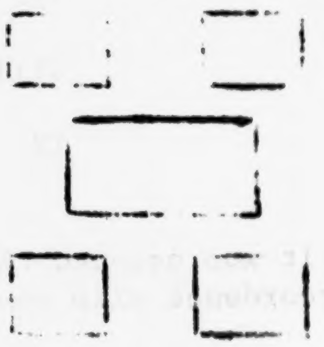
"Compact"



"Transitional"



"Campus"



(2) The utilization factor was distributed within types according to the predominant pattern of student movement within the building. Three utilization types were constructed. These were:

I. "School-Within-School Type" in which groups of pupils, each comprised of students of all grade levels, (e.g. 100 pupils each from grades 10, 11, 12) are housed on separate floors, in separate wings, or in separate "little schools" for substantial portions of the total school program. Student circulation within the individual instructional units is greater than that amo among the several units.

II. "Subject Area Type" in which each floor, wing or "little school" houses a different subject matter area or combination of subject matter area; pupils characteristically move from subject area to subject area throughout the school plant.

III. "Grade Level Type" in which pupils are grouped by grade level, each grade group housed on a separate floor in a separate wing, or separate "little school". Student circulation within each grade level unit is greater than that among the several units.

When the three design factors were combined with the three utilization factors, nine design-utilization types were constructed. These were:

Type	Design Factor		Utilization Factor
I	"Compact"	:	"School-Within-School"
II	"Compact"	:	"Subject Area"
III	"Campus"	:	"School-Within-School"

IV "Campus" : "Subject Area"

V "Campus" : "Grade Level"

VI "Compact" : "Grade Level"

VII "Transitional" : "School-Within-School"

VIII "Transitional" : "Subject Area"

IX "Transitional" : "Grade Level"

It was assumed that each new secondary school buildings could be classified in accordance with one of the nine types so defined.

B. Identification of Schools

The task of identifying school buildings for study was undertaken in this manner:

(1) School plant specialists employed by state departments of education, universities and architectural firms were asked to provide a list of secondary schools constructed in their states between 1954 and 1959. From these sources 261 buildings were identified. See Appendix A.2.

(2) In addition, a systematic search of school building literature in six major educational and architectural journals provided information concerning an additional 171 buildings.

Of the total of 432 buildings identified through these sources, 31 were duplicates, hence the total of buildings from which the ultimate selection was made was 401.

(3) In may, 1960, a letter and inventory were mailed to officials of each of the 401 schools. The questionaire was designed to obtain data useful for the classification of the 401 school buildings and to indicate the willingness of school officials to participate in the study were their schools to be selected. A copy of the letter and inventory is included in Appendix A.1 and A.3. Officials of 298 schools responded to the questionnaire of which 281 or 94.3 percent of those responding indicated their willingness to participate. Of the 281 returned questionaires, complete information was received from 267. The buildings so reported were classified according to the nine "design utilization" types with the following result.

Table B.I

Classification by Building Type of 267 Secondary Schools Identified by Educators and Architects

Type	Number	Percent
I	5	1.9
II	125	46.8
III	8	3.0
IV	59	22.1
V	4	1.5
VI	4	1.5
VII	1	0.4
VIII	59	22.1
IX	2	0.7
Total	267	100

As noted in Table B.1, most of the schools recommended by school plant specialists and architectural writers were of three types: Type II ("Compact": "Subject Area"), Type IV ("Campus": "Subject Area") and Type VIII ("Transitional": "Subject"). Only 14 schools were reported to be of the "school-within-school" pattern of utilization and only 71 or 26.5 percent of "campus" design. "Compact" buildings constituted nearly 50 percent of all buildings reported and "Subject Area" plan of utilization was reported to be employed in 90 percent of the new secondary schools. It is clear now (1963) that, in 1959, the trend toward one-story construction in secondary schools had been established, (129 of the 267 buildings recommended) but that a trend toward "campus" design (71 of the 267) and toward non-subject area patterns of building utilization (only 10% of the total) was barely in evidence. The small number (13) of Type I and Type III buildings resulting from the nation-wide survey markedly limited the sample of buildings ultimately selected, as will be discussed subsequently.

C. Selection of Schools

For preliminary selection, schools which had been occupied prior to 1954 or after 1959 were eliminated[1] as were those which reported enrollments (1959-60) of less than 450 students in the upper three grades. Also eliminated were junior high schools, technical schools and private and parochial schools. When these schools were eliminated, the pool contained 182 buildings. These additional steps were taken:

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[1] An exception was made later to improve the quality of the sample. See Appendix A.12.

(1) In order to provide the most effective model for analyzing differences among the variables of personnel interaction and attitude by building type, it was decided to delete from the research design those building type classifications which themselves were not clearly and markedly different. Those excluded were the middle levels of classifications by design and utilization. These were "Transitional Type" buildings. Three "Campus": "Grade Level" buildings were ultimately included in the final sample as a means of observing certain "middle level" patterns of difference. The four types remaining were I, II, III, and IV. These were the most clearly different types both by design and by utilization.

(2) When the middle level types were removed, the pool was reduced to 197 buildings within Types I, II, III, and IV. Of these, 77 were selected for direct examination by members of the Michigan State University study team and associated faculty members. The seventy-seven schools were selected in such a way as to provide for a representative distribution by the fifteen criterion variables indicated on pages 1 and 2. Included within the group of seventy-seven selected schools were all schools tentatively classified as Types I and III, these containing five and eight examples respectively.

(3) During the months of June, July and August, 1960, members of the Michigan State University faculty visited each of the 77 schools. Several objectives were achieved. First, the design and utilization type tentatively assigned each building was verified, as was the criterion information provided earlier by school officials in the preliminary questionnaire. Two of the five Type I schools were re-classified as were a limited number of the Types II and IV schools. In addition, the schools' principals completed a "Student Personnel Index"[1] in order to provide preliminary information upon the socio-economic distribution of students, a factor not included in the questionnaire but believed to be important to the selection of schools for intensive study.

Comparison was made later of the estimates of students' fathers occupations as reported by principals in the "Student Personnel Index" and the results of the Duncan Index for rating the occupations of students' fathers. Correlation was found to be significant, r= -.69, which would indicate that the instrument was useful by negative implication. The Rho Rank-Difference Correlation between the results of the Socio-economic Index of the Student Personnel Index and the Duncan Index ratings of the fathers' occupations, however, was r= .47. This would indicate that the device of using principals' estimates of socio-economic distributions of student populations has limited applicability. A discussion of the "Student Personnel Index is given in Appendix A.4.

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[1] This instrument was derived from the "Index of Status Characteristics" developed by W. L. Warner and reported in Warners, W. L., Meeker, M., and Eels, K., Social Class in America, Chicago: Science Research Associates, 1949.

(4) Of the seventy-seven schools visited, 66 were found to have been preclassified correctly by study criteria. Unfortunately, the small number of Type I (three) and Type III (eight) buildings themselves were not representative of the group of new secondary schools as a whole. Consequently, it was necessary to select from among the 58 Types II and IV schools those which most closely "matched" the characteristics of the Type I and Type III schools. By comparing the 15 criterion characteristics (p. 2. 1-2) it was possible to "match" the Type I and Type III schools with groups of eight Type II and twelve Type IV schools respectively on all factors except size of school enrollment and socio-economic distribution of students. The 31 schools so "matched" within building type, were finally selected for study. Allowances for "internal" differences within the four types of schools were made, but in truth the schools finally selected still differed by factors other than building type. In addition, the 31 schools were not fully representative of the original group of 267 new secondary schools. They were biased on several factors, namely:

(1) geographic location,
(2) socio-economic distribution of students,
(3) types of communities,
(4) education expenditure level, and
(5) proportion of graduates attending college.

To an extent more than representative, the 31 schools were located in Western and New England states; most were located in suburban communities; their average expenditure level was generally higher and the proportion of their graduates attending college was higher than average. The characteristics of the 31 schools - and the three Type V schools also observed during the study - - are summarized in Section C.

2. Instrumentation:

Project 918 embedied a comprehensive survey of the personnel of 34 new public secondary schools - - each school categorized by contrasting design and utilization factors. Accordingly, a variety of descriptive instrumentation was employed. Many of the instruments were constructed specifically for the study. All were pre-tested, then administered - - using a uniform procedure - - by Michigan State University personnel during the period November 7, 1960, and December 12, 1960. Four classes of instruments were employed, namely:

(1) those used to establish and validate the design: utilization classification of the 34 secondary schools,

(2) those used to estimate school personnel interaction,

(3) those used to describe selected attitudes of school personnel,

(4) and those used to describe the personal, socio-economic and academic characteristic of school personnel.

Interview data were assembled from officials of the 34 schools as a means of verifying and/or interpreting certain of the quantified responses by students, teachers and administrators. The instrumentation employed is described below.

A. Classification and Classification-Verification Instruments

In order to classify the schools by building type, a printer questionaire was used in which the school principal was asked to provide the desired criterion information. Principals' responses - - as previously noted - - were verified by Michigan State University faculty members during a school visit.

(1) Building "Compactness"

Roof area per pupil was used to measure building "compactness". The information was obtained on a form designed for that purpose, directly from the architectural firm which designed the building. The inventory included:

1. Total roof area (excluding overhangs and covered walkways)
2. Area of gymnasium roof
3. Area of pool roof
4. Area of auditorium

A copy is included in Appendix A.5.

By subtracting the roof area of large group spaces from total roof area, comparability among the instructional units of the buildings was achieved.

The roof areas so obtained were then divided by the official school enrollment figure for the year 1960-61 (as reported at end of October, 1960). These figures corresponded most closely to the actual enrollment encountered at the time of the administration of instruments during November and December of 1960.

(2) Building Utilization

The pattern of building utilization was measured by the principal's description in the questionnaire (Appendix A.1.) and verified through direct observation by Michigan State University staff members.

In addition to the on-site verification of building type made by visiting staff members, five measures were later included in the school personnel inventories. These were designed to test the degree of adequacy of the building types and were based on the assumption that the pattern of utilization described as "school-within-school" would be expressed differently than the pattern described as "subject area".

It was assumed, for example, that the "school-within-school" pattern of utilization would bring teachers together with fewer numbers of different students than would the "subject-area" type. To test the adequacy of this assumption--and hence the ultimate adequacy of the building type--each teacher was asked this question:

> "What is your best estimate of the total number of different students which you now have enrolled in all of your classes?
> ____________ different students."
> (number)

It was also assumed that the "school-within-school" pattern of utilization would normally provide a fewer number of different subjects per student during a school term than would the "subject area" pattern. Each student was asked this question:

> "How many different subjects would you normally have today?
>
> (Circle one) 1 2 3 4 5 6 7"

It was further assumed that the "school-within-school" pattern of utilization would circulate students "within" the individual sub-school unit (separate floor as in Type I or separate little schoolhouse as in Type III) more frequently than "among" the several units provided. To measure student circulation patterns, three questions were asked of students. These were:

(a) "In how many different classrooms would you normally have classes today?

Note: Include study hall and gym. (Circle one)

1 2 3 4 5 6 7."

(b) "If your high school building is more than one story high, how many classes would you normally have today on the:

1) first floor________ 2) second floor ______ 3) third floor________

(c) "If your school has two or more buildings, how many classes would your normally have today in each of the different buildings?

	Name of Building	Number of Classes
1.	____________________	______________
2.	____________________	______________
3.	____________________	______________
4.	____________________	______________

(3) Size of School

Size of school was measured by the average number of students enrolled per grade rather than by total enrollment, in as much as the number of grades included in the instructional organization of the 3A schools varied. A senior high school with four grades (9-12), might enroll a greater total number of students than a school of three grades (10-12), hence, be classified as a "larger school"; yet, because its average per grade enrollment may be smaller, it could also be classified as a "smaller" school than the three-grade school. Enrollment figures reported for 1960-61 (end of October, 1960) were employed in the size-of-school calculations.

B. Personnel Interaction Instruments

It was assumed that the social interaction (a) among the different school personnel groups and (b) within different personnel groups would differ among the several building design and utilization classifications. Measures of (a) frequency of interaction, (b) purpose of interaction, (c) efficacy of interaction and (d) sources of interaction were included in the study for school administrators, teachers and students. Many of the questions were duplicated among the different groups in order that comparative analyses by personnel group could be made.

(1) Frequency of Interaction

Students were asked to estimate the frequency with which they "talked with" each of five types of school officials: principal, assistant principal, homeroom teacher, librarian and school counselor. A five-point scale was used to evaluate the degree of interaction reported. The scale provided a range of response of "rarely" to "two to three times daily".

Teachers were asked to estimate the frequency with which "they" "discuss professional concerns" with each of seven school functionaries: principal, vice-principal, school counselor, "house administrator", department head, teacher of same subject and teacher of other subjects. The same five-point scale employed in measuring student responses was used with those of teachers.

(2) Purpose of Interaction

Students were asked to identify the one person to whom they would "most likely turn for assistance" with respect to each of six types of academic, career or personal problems. Possible responses included: school officials, peers, and parents.

Teachers were asked to identify the one person to whom they "would most likely turn" for assistance with respect to each of six types of instructional, relational or personal problems. Possible responses included: school officials, colleagues, students and out-of-school friends.

Teachers were also asked to estimate the extent to which they "were consulted by your administrators" with respect to each of nine representative "professional issues" in which administrative-staff consultation seemed appropriate. A four-point scale ranging from "always" to "never" was employed to evaluate the responses.

(3) Efficacy of Interaction

It was assumed that frequency of interaction would be related to the accuracy of knowledge different groups of school personnel would have one of the other.

In order to measure the efficacy of reported administrator: teacher interactions, administrators were asked to name the "three teachers that you feel you know best, from all of those on your staff." The administrator was then asked to answer eleven factual questions concerning each such teacher. These included: (a) sex, (b) age, (c) years of experience on the high school staff, (d) highest degree held, (e) subjects presently teaching, etc.. The administrator's responses were then compared to those given to the same questions by the named teachers in the "General Information" section of the teacher inventory. The administrator's responses were scored "right" or "wrong" in accordance with their agreement with the named teacher's own responses. The number of "wrong" answers was scored and reported for each administrator.

The efficacy of reported teacher: student interactions was similarly measured. Each teacher was asked to name, "the one student from all those you are now teaching in grades 9, 10, 11, or 12, whom you feel you know best." The teacher was then asked to answer from memory twelve simple questions about the named student. The teachers' answers were then compared to those provided by the named students in the General Information section of the student inventory.

Students were also asked to name the "teacher whom you feel knows you best", the interaction and attitude characteristics of these named teachers were examined.

(4) Sources of Interaction

It was assumed that different groups of school personnel would vary in their choices of most important interactions with other people. It was also assumed that "friends" represented a possible source of interaction of greater significance to school personnel than "colleagues" or "peers". Teachers were asked these questions:

(a) "How many of the teachers on your high school staff do you really think of as a good friend?"

(b) "Of the remaining teachers, how many do you really enjoy working with?"

To identify sources of peer friendships among students, each student was asked the following question:

"List the name of your best friend that is of your own age group. ______________________________. Where did you get to know this friend? (check one):

_______ Classes together

_______ Lives in my neighborhood

_______ Church

________ School club or activity

________ Out-of-school club

________ Other (name) ______________________________."

"Classes together" and "School club or activity" were scored as "in-school" sources of friendship. The three other alternatives were scored as "out-of-school" sources of friendships. When the student specified, "other", it was scored according to its appropriate "in-school" or "out-of- school" category.

Adult sources of student friends were also examined to measure the significance of the school in the life of the student. If the school functions as a significant part of the life of the student, it was assumed that the number of adult friendships developed within its context could be expected to be greater. For the most part, adults in the school would be teachers. On this basis, each student was asked the following questions:

Write the name of the adult you like best. Not parents or relatives.
____. Where did you get to know
Last Name First Name
this person? (check one)

__________ In-school activities

__________ Out-of-school activities

What does this person do for a living? __________________________."

In this question, the name of the person holds no significance except as it served to prompt the student to think of one particular person. The person's occupation, however, provided the basis for an estimate of the socio-economic level of adult friend.

(5) Social Intermix

It was assumed that students would vary in their choices of types of friends and student leaders. It was further assumed that the opportunities for interacting significantly with a wide divergence of types of students would be greater in the "school-within-school" pattern of building utilization than in the "subject area" pattern. It was also assumed that the "little school" or campus plan which embodied the "school-within-school" pattern of utilization would promote greater social intermix among students both with respect to their choice of types of friends and with respect to their choice of types of student leaders.

In order to measure social intermix, two questions were presented to students.

(a) Each student was asked to name his best friend. If this was an "in-school" friend, the socio-economic level of the named friend was obtained from the classification of his father's occupation. The socio-economic level of the responding student and that of his chosen best friend were then compared. In this manner, it was possible to estimate whether students were choosing friends from (a) within, (b) above or (c) below estimates of their own socio-economic level.

With respect to choice of student leader, each student was asked this question:

"Give the names of the two outstanding student leaders in your school."

Grade
1. ______________________________ Sex M F 9 10 11 12
Last Name First Name (circle one) (circle one)

Grade
2. ______________________________ Sex M F 9 10 11 12
Last Name First Name (circle one) (circle one)

From these questions it was possible to determine the degree of dispersion by sex and by grade level of students reported to be "outstanding leaders" within the schools. Given the names of the students, it was also possible to determine - - from the identified student leaders' own responses to the inventory - - the several personal characteristics of the chosen leaders.

An additional measure was obtained from these questions. Those student leaders reported by ten or more students in a school to be "outstanding leaders" were identified and separately labeled, "actual leaders". The characteristics of "actual leaders" were then determined from the leaders' own responses to the inventory providing additional information as to the dispersion of leadership within the different types of buildings by sex, grade level and socio-economic position of actual student leaders.

C. Personnel Attitude Instrumentation

It was assumed that certain selected attitudes reported by school personnel would differ among the building types. The objects of these attitudes were: (a) peers, (b) the institutional environment itself and (c) the aesthetic or "human" qualities attributed to the school architecture.

(1) Self-Other Acceptance

As a means of measuring personnel attitudes toward self and peers, the Bills Index of Adjustment and Values was selected (Robert E. Bills, Manual for the *Index of Adjustment and Values*. Auburn, Alabama: Alabama Polytechnic Institute, 1959). The instrument produces four classifications of individuals, according to the degree to which self and others are believed to be worthy or acceptable persons. These are:

(1) those who accept self and others, labelled "high valuing",
(2) those who are accepting of self but not others, labelled "over valuing",
(3) those who reject both self and others as basically worthy human beings, labelled "low valuing" and
(4) those who reject self but believe others to be worthy, labelled "under-valuing".

In previous applications of this instrument with administrators, teachers and secondary school students, Bills reported test-retest correlations of .79 for self-acceptance and .65 for acceptance of others. (Ibid. p.54). Bills also discussed the validity of the instrument and reported significant correlations with valid instruments of similar type. (Ibid. p.64). The applicability of the instrument to this study is occasioned by this assumption.

If the schools are actually functioning to produce effective human relations among personnel, the incidence of "high valuing" individuals would be expected to be greater, and the incidence of "over valuing" individuals would be expected to be less. Because "high valuing" individuals are reported to be particularly effective in situations requiring cooperative relations with others, a marked incidence of "high valuing" personnel would seem to be a desideratum in the secondary school.

In establishing the classification of individuals, Bills employed a cutting score at the mean, hence the probability of false classification appeared to be high. In this study, classifications were established with a cutting score of one-half Standard Error of Measurement above and below the mean even though a number of cases were lost with this procedure.

The instructions normally provided for this instrument were also modified for ease in self-administration. Neither the context or pattern of response to the items were changed.

(2) Institutional Acceptance

An instrument entitled, "High School Characteristics Check List", was developed in an attempt to estimate the degree to which school personnel accept their school as a basically "good" institution. The instrument, patterned after the Bills Index cited above, confronts the individual with 16 characteristics of his school. These characteristics sample the many aspects of school life, including "teacher-student relations", "academic standing of high school", "quality of instructions", etc. The student responded to each of the 16 characteristics in two ways:

(1) he estimated how much of the time the characteristic is adequate in his school and

(2) he indicated the degree to which he accepts the level of adequacy which he reports for each characteristic.

The "acceptance" score for each item ranges from (1) "very much dislike" to (5) "very much like". Acceptance scores were weighted from one to five and the total instrument scored from 16 to 80. Classification was achieved by the use of a cutting score of one-half SEM above and below the mean. "Acceptance" was defined as a score of 50 or more; "none-acceptance" was defined as a score of 46 or less.

The applicability of the experimental instrument rests on the assumption that:

> If building types are actually functioning to produce effective social interactions among school personnel, the incidence of "Acceptance" of the institution would be expected to be greater and the incidence of "non-acceptance" to be smaller.

(3) Aesthetics or "human" qualities of the School Building

If the factors of "compactness" and "decentralization" are actually functioning, it was assumed, school personnel would respond to apparent differences in building environment in terms of the "aesthetic" of "human" qualities of the architectural design and utilization pattern. Certain "residential" characteristics of the decentralized plant would be expected to produce the response "aesthetic" or "human" whereas the "institutional" qualities of the mass or "compact" building would be preceived as non-aesthetic or non-"human". In an attempt to measure the responses of school personnel to these aspects of building types, "A School Building Aesthatic Scale" was constructed. The instrument consisted of 19 pairs of contrasting adjectives. The individual checked the particular adjective in each pair which he believed "best describes your building." Certain of the adjectives were assumed to be more representative of "human" qualities in the architecture. Among the "human" type adjectives were: warm, youthful, comfortable, interesting, friendly, bright, residential, colorful and clean. Contrasting adjectives were: univiting, adultlike, uncomfortable, uninteresting, unfriendly, dim, factorylike, drab and dirty.

The adjectives were compiled from journal articles which referred to "human elements" in architecture written by architects and educators. A list of 75 paired adjective was originally compiled. In pre-tests with students, those items which were found to discriminate by factors of age, sex and marital status were eliminated. The nineteen items finally included fell within the middle range of item-total correlations, a technique reported to be consistent with accepted test development procedure. The instrument produced a maximum score of 19. For coding purposes, responses were recorded negatively, hence the lower the reported score the higher the degree of "human-ness" believed to be intended by the respondent.

There are no validity studies in connection with this instrument. Internal consistency of responses, However, proved to be reliable, SEM was 2.4396.

A similar instrument entitled, "Classroom Aesthetic Scale," was also included in the study. It consisted of the same paired adjectives as those of the "Building Scale" and was scored in the same manner. Rather than the building as a whole, the point of reference in this test was the class room in which the student or teacher was sitting at the time of test administration.

D. Personnel Information Instruments

In addition to the classification instruments and measures of interaction and attitude, certain information descriptive of the individual responded was obtained through self-reports. All school personnel participated. Items included were: name, age, sex, father's occupation, etc. These questions were included under the section entitled "General Information" in each inventory. All information was accepted as reported except that of socio-economic status. A measure of socio-economic level was assigned to each respondent by an index of occupations reported by respondents for heads of households. The questions used to determine this information for students are found under item 5 of the "General Information" section of the student booklet and under items 7 and 8 of the "General Information" section of the teacher booklet. On the basis of the information obtained, the father's occupation reported by each respondent was rated according to the Duncan Socio-Economic Index (Otis Dudley Duncan, "A Socio-economic Index for All Occupations". Population and Research Training Center, University of Chicago, 1960. Dittoed.)

The Duncan Index expresses income and education level coefficients for each of several hundred primary occupations on a scale of 1 to 100. The partial correlation of .61 and .65 of occupational prestige with each predictor (income and education), holding constant the other, was substantial and highly significant, Duncan reports. Combining the two predictors in a linear multiple regression equation produced a multiple correlation of .91 and .83, which was appreciably larger than either zero-order correlation. Duncan concluded:

> "The case of 'validity' of the socio-economic index rests primarily on the evudence just presented together with the earlier arguments for the suitability of education and income as indicators of 'socio-economic status' quite apart from their correlation with occupational prestige." (Ibid. p.19).

The relevance of this instrument for this study is found in the necessity to control the variable of "socio-economic" level within and among the three groups of personnel found in the different building types, inasmuch as "socio-economic" level is reported to correlate highly with interaction and student and teacher attitudes. The Duncan classification of occupations is included in Appendix A.6.

It should be observed that all instruments included in the study were of the pencil and paper variety and relied almost exclusively upon self-reports from school personnel. Although self-reports have generally been found to be useful and internally consistent, their validity is always subject to question. Doubtlessly, repeated observations in the schools by trained professionals and carefully constructed interview schedules would have produced more valid information--especially with respect to personnel attitudes. However, the purpose of Project 918 was to survey nation-wide a variety of characteristics of new secondary schools and school personnel as a means of generating possible hypotheses for future testing and experimentation. The fact that extreme care was exercised in choosing the population for study and in the administration of instruments doubtlessly increased the probablity of valid responses to the several instruments. The high percent of personnel response to all items (reported in the following section) also lends credence to the reported results.

3. Test Administration and Response

Instruments were printed and collated in booklet form for students, teachers and administrators. The booklets are included in Appendix A.7, A.8, and A.9. Pretests of the instrument booklets were conducted at Michigan State University with new college freshmen, selected graduate students (themselves teachers and administrators) and faculty members. Modifications were made in accordance with their suggestions concerning clarity, ease of administration and time requirements. The range in test booklet completion time during the pre-tests and in the subsequent administration of booklets in the selected schools was precisely the same: a minimum of 45 minutes, maximum of 78 minutes and a median completion rate of 56 minutes.

The thirty-four schools were divided into eighteen groups for administration of the inventories. Twenty-one MSU faculty members and graduate students were trained to administer the booklets. A Staff Booklet (Appendix A.10) was also prepared for the 21 administrators in which the instrumentation was described and the procedures for administration discussed. In addition, the staff member was provided interview schedules in which he could obtain detailed descriptive information from school officials concerning the schools' organization and administration, curriculum development practices, program characteristics, and instructional practices and materials. Special detailed sections were included for describing "school-within-school" programs. Interview schedules were also included in the Staff Booklet for describing pupil personnel and guidance services within the schools because these services had previously been reported to be particularly well developed in the "school-within-school" programs.

The 21 staff members visited 34 schools, each for two days, during the period of November 9 and December 12, 1960. Teachers were convened in groups and instructed in the administration of the student inventories and in the completion of the teacher inventories. On the morning of the second day of the visit, the inventories were administered to all students and teachers in attendance. There were few difficulties reported by students or teachers from the administration procedure, and the high percent of completed responses were consistent with the care exercised in development and administration.

A. Treatment of Data

After completion of test administration, the MSU personnel supervised the packaging and mailing of all booklets. Upon receipt of the materials at MSU, each booklet was assigned a separate school and personnel number. Initially, a twenty-five percent random sample of booklets was selected for punched card encoding and tabulation; however, when the study was later extended through funds from Cooperative Research Project No. 1443, all booklets were ultimately encoded and tabulated. Most of the instruments were self-scoring, hence were key-punched and verified directly in the MSU punched card processing center. The Duncan Index of Occupations, however, had to be hand coded from a key. In similar manner, the names of teachers, students, adults, etc., had to be hand corrected before key punching. Problem inventories were categorized and coded by hand. The editing, coding, key punch and verifying procedure required fourteen months for completio

B. Response to Inventories

Of the 45,460 students reported to be enrolled in October, 1960, 41,196 or 90.6% responded to the test booklet. The 9.4% of the students who did not respond were presumed to be absent on the morning the booklets were distributed in each classroom. November and December enrollments in some schools, however, were less than those which had been reported in October. Of the 41,196 booklets 36,640 or 88.9% were completed in their entirety. The overall efficiency of the test administration was measured by the percent of those (a) completing all booklet entries to those (b) reported to be enrolled. For the 34 schools, the percent of efficiency ranged from 78.2 to 86.5 with a mean efficiency of 80.6. The cost of selecting schools, test construction and administrators was approximately $21,000 or about fifty-seven cents per completed student booklet. In addition, completed booklets were received from 1950 teachers and 257 administrators. The cost efficiency for completed responses from all personnel was estimated, therefore, to be 54 cents ($21,000÷38,847) per person. These figures are summarized in Table B.2 on the next page and in Appendix A.11.

TABLE B.2
NUMBER AND PERCENT OF STUDENTS RESPONDING TO INVENTORIES

Type of School	No. of Schools	Enrollment (1960-61)	Total Response	Percent Response	Number Completed	Percent Completed	Percent of Respondents Completing All Items
I	3	5,245	4,836	92.2	4,537	86.5	93.8
II	12	12,432	11,065	89.0	9,712	78.2	87.8
III	8	11,266	10,308	91.5	9,233	81.9	89.6
IV	8	11,563	10,567	91.4	9,171	79.3	86.8
V	3	4,954	4,420	89.2	3,980	80.3	90.0
TOTAL	34	45,460	41,196	90.6	36,640	80.6	88.9

Source: Appendix A.11

4. Methods of Analysis

Data produced from the school personnel of the 34 schools were organized statistically to test two groups of hypotheses:

(1) those related to the classification of the schools and their characteristics and
(2) those examining the relationships between
    (a) building types and personnel interaction and
    (b) building types and personnel attitudes.

Appropriate statistical methods were chosen for each type of hypothesis.

A. Classification Hypotheses and Their Treatment

Seven hypotheses related to the classification of schools and their characteristics were constructed. These were:

1. Schools are matched for all relevant school-community factors within each building type.

2. Students are distributed proportionately within each building type by relevant factors of sex, age, grade level, years in school and socio-economic level.

3. Teachers are distributed proportionately within each type of school according to factors of sex, age, degree, marital status, etc.

4. The overall pupil-teacher ratio varies by types of schools; specifically, the number of different students enrolled by teachers within the "school-within-school" pattern of utilization (Type I and Type III) will be less than in "subject area" patterns of organization (Type II and Type IV).

5. The number of different subjects in which students are enrolled differs among the types of schools; specifically, the number of different subjects reported by students is less in the "subject-within-school" pattern (Type I and Type III) than in the "subject area" pattern (Type II and Type IV).

6. The extent and pattern of student circulation differs by type of school; specifically, student circulation among building units is less in "school-within-school" patterns (Types I and Type III) than in "subject-area" schools (Type II and Type IV).

7. "Compact" schools (Type I and Type II) contain less square feet of roof area per enrolled student than "Campus" schools (Type III and Type IV).

B. Statistical Method

Hypotheses II and III (distribution of personnel within building types) were tested by use of Chi Square. As differences were observed, the student and teacher populations were made comparable within types by means of a stratified random sampling procedure in which the variables were distributed proportionately by school and by type.

Hypothesis I (distribution of 15 criterion variables within building types) was also tested by use of Chi Square. The following formula was used:

$$X^2 = \frac{N\ (AD - CB) - N/2^{\;2}}{(A + B)\ (C + D)\ (A + C)\ (B + D)}$$

Chi square values were held to be significant when the probability of chance occurence of the observed distribution did not exceed the ratio of one and twenty (.05 level).

Hypotheses IV, V, VI, and VII were tested by an "F" test of the means.

5. Substantive Hypotheses and Their Treatment

The purpose of Projects 918 and 1443 was to describe certain characteristics of secondary schools in order to generate hypotheses for possible future experimentation in school design and utilization. The project was not designed to test preconstructed hypotheses, hence the substantive results of the studies were organized around certain basic questions rather than hypotheses. These were:

1. Are patterns and/or frequency of interaction among school personnel related to the type of school environment (building type)? Can the frequency of interaction be modified by altering building design or pattern of utilization?

2. Are the patterns and/or frequency of personnel interaction in any way related to certain characteristic attitudes of school personnel, particularly attitudes which are associated with the objectives of secondary education?

3. Are the patterns of attitudes of school personnel related to the type of school environment (building type)? Can the patterns of attitudes be modified by altering building design or pattern of utilization?

The literature suggested the possibility that school personnel interaction patterns may vary by factors of building design and utilization, and that certain attitudes are related to--and may be influenced by--interaction. Project 918 studies were organized to determine the credibility of two of these possibilities by examining certain relationships between (a) building type factors and interaction and (b) building type factors and attitudes. The argument was constructed: if both interaction factors and attitude factors were found to be related consistently with building type factors, the inference could be drawn that interaction factors are in some way related to attitude factors as the literature suggests. A further inference might be also justified: that either interaction and/or attitude factors could be modified by altering the design or utilization of the building. However, the Project 918 studies were not designed to explore directly any supposed relationships between interaction and attitude.

The principal elements of design were as follows:

(1) A (b) : C (2) A (b) : D

Where A: building type factors
B: ecological factors
C: interaction factors
D: attitude factors

For step one of the design, these general null hypotheses were constructed. The null hypotheses related to interaction were:

A. There is no relationship between building type factors and frequency of school personnel interaction, when ecological factors are controlled.

B. There is no relationship between building type factors and the types of problems reported by school personnel, or the sources of help sought by school personnel on significant problems.

C. There is no relationship between building type factors and the types of interaction patterns formed by school personnel.

D. There is no relationship between building type factors and the accuracy of knowledge groups of school personnel as they report one for the other.

Three additional null hypotheses were constructed in order to examine anticipated relationships between building type factors and personnel attitudes. These were:

A. There is no relationship between building type factors and the attitudes of school personnel toward self and others.

B. There is no relationship between building type factors and the attitudes of school personnel toward the school.

C. There is no relationship between building type factors and the attitudes of school personnel toward school design.

Each general null hypothesis was reduced to a series of sub-hypotheses:

(1) by the three groups of school personnel (administrators, teachers and students),

(2) by the four building type factors (type of building, size of school, building design and building utilization).

For each of the three groups of school personnel, variance by building factor was determined. Hence, for each group of school personnel four applications were examined as follows:

(1) By building type: H_o: I = II = III = IV

(2) By building design: H_o: I + II = III + IV

(3) By utilization: H_o: I + III = II + IV

(4) By school size: H_o: Large = Medium = Small

In accordance with the nature of data employed to test each hypothesis either Chi square or an "F" test of means was used.

APPENDIX A

Reference Tables and Materials

For Use With
Chapter 2

MICHIGAN STATE UNIVERSITY

Study of Effects of Building Design and Utilization
Upon High School Staff and Student Personnel

Financed Under Public Law 531
U. S. Office of Education, Project No. 918

1. SCHOOL DISTRICT INFORMATION

The high schools selected for study should be representative of the diverse school districts found in the United States. Would you please provide the following information concerning your school district?

A. What grades are taught in the school district? (Check)

( ) K-12 ( ) 7-12 ( ) 9-12 ( ) 10-12 ( ) Other ________________
Specify

B. What is the total enrollment of the school district? ____________________

C. What was the approximate per pupil current expenditure excluding capital outlay of the school district during 1958-59? (Check)

( ) less than $250 ( ) $250 ( ) $300-349
( ) $350-399 ( ) 400-499 ( ) 500 or more

D. In what general type of community or area is the school district located? (Check)

( ) urban center ( ) village ( ) industrial suburb
( ) "bedroom" suburb ( ) non-farm rural ( ) rural farm
( ) Other ______________________________
(Specify)

E. How many public high schools are located in the district? (Check)

( ) 1 ( ) 2 ( ) 3 ( ) 4 or more

F. Approximately how many square miles are enclosed by the school district? (Check)

( ) less than five ( ) 5-10 ( ) 11-15 ( ) 16-20
( ) 21-25 ( ) 26-30 ( ) more than thirty

II. INFORMATION ABOUT THE ______________________________ HIGH SCHOOL.

The high schools selected for study should be representative of the diverse types of schools found in the United States. Would you please provide the following information concerning the high school.

A. What grades are included in the high school? (Check)

( ) 7-12 ( ) 8-12 ( ) 9-12 ( ) 10-12 ( ) 10-14

B. What is the current enrollment per grade?

______	______	______	______	______	______	__________
7	8	9	10	11	12	Total

C. From approximately what radius does the school draw its students? (Check)

( ) less than 1 mile ( ) 1-3 miles ( ) 4-6 miles
( ) 7-9 miles ( ) 10-15 miles ( ) more than 15 miles

D. Approximately what proportion of the student body is transported by school buses? (Check)

( ) none ( ) less than 10% ( ) 10-25% ( ) 26-40%
( ) 41-70% ( ) more than 70%

E. How many full tine non-teaching certificated personnel (e.g. librarian, administrators, counselors) are employed in the high school? ____________
(Include combination teacher-counselors, etc. under F below)

F. How many full time classroom teachers are employed in the high school?
____

G. Approximately what number of the professional staff are males? ____________

III. INFORMATION CONCERNING HIGH SCHOOL ORGANIZATION AND PROGRAM

The high schools selected for study should be representative of the diverse patterns of organization and variety of school programs of high schools within the United States. To assist us in the selection of high schools for study would you please provide us with the following information.

A. Approximately what proportion of the high school's graduates attend college? (Check)

( ) less than 25% ( ) 25-49% ( ) 50-74% ( ) 75% or more

B. Into how many class periods is the typical school day divided?

______________A.M. __________________P.M. _______________Total

C. How many minutes are allotted to the typical class period? (Check)

( ) 45 ( ) 50 ( ) 55 ( ) 60 ( ) 70 Other: ____________
(Specify)

D. How many minutes are typically allotted to period changes? (Check)
( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 Other: ________
(Specify)

E. Approximately how many students are currently enrolled in each of the following types of high school programs?

Types of Program	Number Enrolled
1. College Preparatory:	________
2. Commercial:	________
3. General:	________
4. Other: (Specify):	________
________________	________
________________	________

F. Is a copy of the course schedule for the current semester available? If so, would you please attach a copy to this questionnaire? If not, would you answer the following questions?

1. How many one-semester courses are currently taught? __________
2. How many two-semester courses are currently taught? __________
3. Is there a "homeroom" provided each student? ____________
   If so, how frequently does "homeroom" meet each week? __________
4. Is there a study hall provided? ______________
5. Is there an "activity" or "extra-curricular" period scheduled at some time during the regular school week? ________________

G. Which of the following two statements most closely describes your high school plan of operation? If neither, please describe briefly how your plan operates.

( ) 1. Students move each 45-70 minutes from class to class in order to pursue a course of 4-6 subjects with different teachers. Teachers normally remain in their subject area classrooms.

( ) 2. Students remain in one area of the building for "blocks of time" (longer than one period) with the same teacher or team of teachers in order to pursue their "basic" or "general education" subjects.

( ) 3. Other: (Please describe briefly) ______________________
____

IV. INFORMATION CONCERNING THE HIGH SCHOOL BUILDING AND SITE

A. Approximately how many acres are contained in the school site? (Check)

( ) less than 10 ( ) 11-20 ( ) 21-30 ( ) 31-40
( ) 41-60 ( ) more than 60

B. How many stories are provided in the classroom sections of the building? (Check)

( ) 1 ( ) 2 ( ) 3 or more

C. When was the building first occupied? (Check)

( ) 1954 ( ) 1955 ( ) 1956 ( ) 1957 ( ) 1958 ( ) 1959

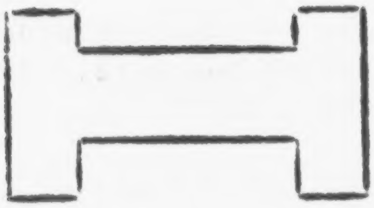
D. Is a descriptive brochure (e.g. dedication program) which contains a rough floor plan of the building available? If so, please attach a copy to the questionnaire. If not, please provide the following information.

1. Building Spaces: (Please indicate the number of each of the following types of spaces provided in your building)

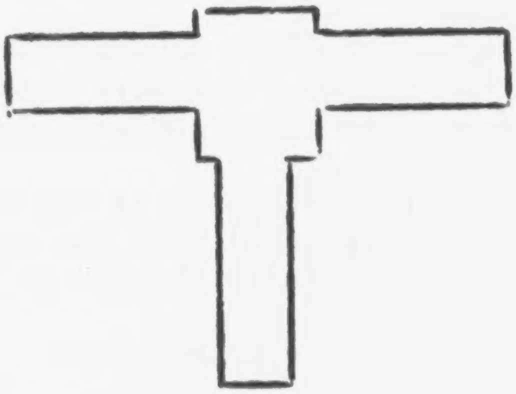
Type of Space	No. of Rooms	Type of Space	No. of Rooms
a. Auditorium		h. Food service	
b. Administrative office		i. Physical education	
c. Business education		j. Health service	
d. Art		k. Teachers lounge	
e. Library		l. Guidance	
f. General classrooms		m. Music	
g. Science		n. Shop	

2. Building Plan: (Of the three rough drawings below, check which most closely resembles your building.)

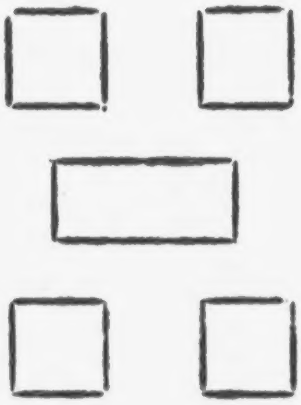
( ) a. "Compact"



( ) b. "Transitional"



( ) c. "Compact"



E. Which of the following statements most closely describes the manner in which pupils are distributed within your building? Please recognize that some portions of the building (e.g. gym or lunchroom) may be used by all pupils.

( ) 1. "Grade Level Distribution": pupils are grouped on separate floors, in separate wings, or in separate "little schools" according to separate grade levels (i.e. each grade has its own floor, wing, or "little school.")

( ) 2. "School-Within-School Distribution": pupils in groups from all grade levels (e.g. 100 pupils from each grade 10, 11, 12) are housed on separate floors, in separate wings, or in separate "little schools" for substantial portions of the total school program.

( ) 3. "Subject Area Distribution": each floor, wing or "little school" houses a different subject area or combination of subject areas. Pupils normally move from area to area throughout the building.

( ) 4. Other: (Please describe briefly)

Please Return to: K. T. Hereford, Project 918 Coordinator
404 College of Education
Michigan State University
East Lansing, Michigan

(COPY OF LETTERS SENT TO SCHOOL PLANT SPECIALISTS IN 48 STATES)

With a grant from the U. S. Office of Education, members of the Michigan State University staff are conducting a study of new high school buildings in the United States. Specifically we are interested in determining the effects of school building design and utilization upon the people who use the buildings. During the year, approximately thirty high schools will be selected throughout the country for study. These buildings will have been completed and occupied during the four year period of 1955-1958. Examples will be selected from among conventional compact buildings and among those which are decentralized in a campus arrangement. Within the compact and campus types, we will seek those which are organized on a "school-within-school" pattern and those which are organized along more conventional lines. All Buildings should be "outstanding examples" of school architecture regardless of basic design scheme or pattern of organization. Comparisons will then be made in the patterns of interaction of school personnel and students among the extreme types.

As a person with recognized ability and judgment in the school plant field, you can assist us greatly in the selection of schools to be studied. Would you compile a list of not more than six high schools completed and occupied between 1955 and 1958 which you believe to be among the best buildings in your state? It would facilitate our efforts if you could also identify the superintendent of the school districts involved.

We should like to forward you a copy of the final report of our study for your files.

Very truly yours,

(K. T. Hereford)
Associate Professor

KTH:rb

A.2.2

Ref: U. S. Office of Education
Project No. 918

No.	Name of High School	Location	Superintendent of District
1.			
2.			
3.			
4.			
5.			
6.			

Signiture: ____________________

Please Return to:

K. T. Hereford
Project Coordinator
Department of Administrative and
Educational Services
College of Education
Michigan State University
East Lansing, Michigan

We are now sending questionnaires to the superintendents of the schools that you recommended. It is possible that these superintendents will ask questions of you concerning this study. Therefore, for your own information and in order to answer such questions, we are sending you a copy of the study proposal that has been approved by the U. S. Office of Education.

Should you find time to study our proposal, we would appreciate comments that would assist us in obtaining the most valid results possible.

Your cooperation is extremely gratifying.

Research Staff
U. S. Project 918
School Building Design Study

A.2.4

May 16, 1960

Dear Mr.

We are presently visiting the following high schools in your state which you have recommended for our nationwide study of school building design and utilization.

School	Location	Superintendent

Our staff will be obtaining various information concerning the school buildings and districts.

Very cordially yours,

K. T. Hereford
Project Coordinator

May 7, 1960 (To School District Superintendent)

Dear Mr.

The United States Office of Education is supporting a study to determine the effects, if any, of school building design and utilization upon the interactions and attitudes of the staff and students of thirty of the nation's outstanding high schools. The study will be conducted by a research team from Michigan State University during the Fall of 1960. Many non-building factors obviously affect patterns of interaction, therefore, schools will be chosen from every region of the country and from each major type of school-community in order to obtain the necessary representation in our sample.

Earlier this year, each state department of public instruction gave us a list of the six most outstanding new high schools in its state. The ________________________________ high school of your district was so recommended to us as a possible example for study; hence, our letter to you. The study would involve approximately two hours of testing among staff and students spread over a two-day period in the Fall of 1960. In addition, the study team would conduct a complete survey of the building itself. The district will of course share in the results and attendant publicity associated with the study.

If you would like to discuss the possibilities of participating in the study, we would like to have a member of our staff visit with you personally at your convenience in May. The staff member will be prepared to discuss all details of the study with you at that time, and to make final selection of the schools for our sample of thirty.

Meantime, our initial selection of schools to be visited would be greatly facilitated if you could direct a member of your staff to complete the following inventory of your school district and of the characteristics of the new high school.

We should appreciate very much your early reply.

Very cordially yours,

K. T. Hereford
Project Coordinator
404 College of Education
Michigan State University
East Lansing, Michigan

KTH:kd

U. S. OFFICE PROJECT 918

MICHIGAN STATE UNIVERSITY

Student Personnel Index

Purpose-

In selecting the sampling of schools and placing them into groups, the comparability of the groups was given attention. In this respect, the socio-economic level of the student body was considered important. Neither time nor the facilities was available to obtain this information by administering an instrument to the entire student bodies of each of the 77 high schools. Hence, some instrument had to be devised to estimate this factor and permit rapid and simple analysis. The "Student Personnel Index" was constructed for this purpose.

Construction-

The items used in the instrument are derived from the "Index of Status Characteristics" developed by W. L. Warner et al.[1] It uses the same general social, economic, educational and ethnic categories. Some of the specific descriptive statements are modified for the sake of simplicity.

Administration-

During the preliminary school visits a meeting with the administrative staff was held. At this time, the principal of the schools was given this instrument. He was instructed to read all of the statements under one general heading and then to estimate the percent of parents of students in the school which described the distribution by educational levels, occupations level, housing condition, etc. He was encouraged to discuss his estimates with the other members of the administrative staff before giving a response. They were permitted to make a random persual of student records for assistance but time would not permit a complete analysis of the records. The interviewers were instructed not to interpret the statements. Several definitions were predetermined by the interviewers where it was deemed necessary. The administrative staff was also instructed to distribute 100% within each general category.

Scoring-

Weightings were assigned to each of the statements within each of the categories according to status levels, e.g. 1=highest status statement, 2=next highest status statement, etc. This weighting system was used for all the categories except for that referring to race and ethnicity. In this category, weightings were assigned according to the size (percentage) of the groups represented in the student bodies, e.g. 1= largest proportion, 2=next largest proportion, etc. The scores resulting from categories A, B, C, and D were grouped. This grouped score was termed Socio-economic Index. The scores for Race and Occupations were used separately.

---

[1] Warner, W. L., Meeker, M., and Eells, K. Social Class in America. Chicago: Science Research Associates. 1949.

From this scoring system the following possible scoring ranges emerge: 1) Socio-economic Index - highest possible rating = 4.00 - lowest possible rating - 21.00, 2) Racial Intermix - highest possible intermix = 4.00 - lowest possible intermix = 1.00, 3) Occupations - highest possible level = 1.00 - lowest possible level = 13.00.

Validity-

The socio-economic levels of the student bodies in the thirty-four schools later used the study was actually determined by the Duncan Index for rating the occupation of students' fathers. This information enabled comparisons to be made with the information previously obtained by principals' estimates. The Rho Rank-Difference Correlation between the results of the Occupations scores of the Student Index administered to the administrative staff and the results of the Duncan Index ratings of the fathers' occupations was r= -.69. This would indicate that the instrument was useful by negative implication. The Rho Rank-Difference Correlation between the results of the Socio-economic Index of the Student Index and the Duncan Index ratings of the fathers' occupations was r= .47. This would indicate that the instrument was only partially useful in this respect, but it should be noted that Socio-economic Index of the Student Index does not deal with occupations. These correlations were made on the basis of the information available for the thirty-four high schools only.

The instrument is presented on the following pages.

A.4.3.

PROJECT 918

MICHIGAN STATE UNIVERSITY

STUDENT PERSONNEL INDEX

Please indicate the percentage of parents of students that have the following circumstances.

PERCENTAGE IN THIS SCHOOL

A. Area live in:
1. Select residential area (or areas) of highest repute in the community. ________
2. Better suburban and apartment house area; homes with large grounds. ________
3. Preferred residential areas, adequate grounds, good apartment buildings. ________
4. Residential neighborhoods with no deterioration, reputed to be average. ________
5. Area beginning to deteriorate; business or industry entering into it. ________
6. Area considerably deteriorated but not a slum area; depraciated reputation. ________
7. Slum area (or areas) of the community neighborhood in bad repute. ________

B. House type:
1. Large houses in good condition; adequate grounds. ________
2. Large house in medium condition; large apartments in well-kept buildings. ________
3. Moderate house in medium condition; large apartments in well-kept buildings. ________
4. Large house and moderate house in fair condition; apartment buildings in medium condition. ________
5. Small house in good condition; good apartments in remodelled houses. ________
6. Small house in medium condition or fair condition; apartments in fair condition. ________
7. All houses and apartments in bad condition; store fronts, etc. ________

A.4.4.

PERCENTAGE

C. Source of income:

1. Savings and investments, inherited -- 50% or more of the income. __________
2. Savings and investments, gained by the earner -- not retirement pensions. __________
3. Profits and fees -- including higher executives who share in profits. __________
4. Salary or commission -- including retirement earned thereby. __________
5. Wages, based upon hourly rates on piece-work. (Time Card Personnel). __________
6. Private aid or assistance -- may be supplemented by part-time work. __________
7. Public relief and non-respectable income, according to reputation. __________

D. Education:

1. Completed one or more years of graduate work at college or University. __________
2. Graduated from four-year college, university, etc. or professional school. __________
3. Attended college for two or more years, or equivalent higher education. __________
4. Graduated from high school, or equivalent secondary education. __________
5. Attended high school, completed at least one year but did not graduate. __________
6. Completed no more than three to eight years of grade school. __________
7. Completed no more then three years of grade school. __________

E. Racial Background:

1. Old American or Old established community names. __________
2. Assimilated American or community leader, etc., but not of "old names". __________
3. French Canadian or Irish. __________
4. Northern European ethnic group or sect. __________
5. Southern European or Jewish. __________
6. Eastern European or Near East. __________

PERCENTAGE

7. Colored - Negro, Oriental. ________

F. Occupations:

1. Lawyer, doctor, dentist, judge, minister, professor, engineer, or comparable occupations. ________

2. High school teacher, trained nurse (RN), chirop'st, chiropractor, architect, undertaker, minister (no college), asst. office and dept. managers or supervisors, real estate salesmen in reputed firms, columnist or editorial writers, accountant, etc. ________

3. Grade school teacher, optometrist, pharmicist (employee), mgrs. of small branch stores and similar businesses, salesmen, buyers, bank and broker's clerks, RR agent, elected civic and county officials, newspaper reporter, etc. ________

4. Stenographer, bookkeeper, rural mail clerk, ticket agent, auto salesmen, auto, clothing, book, drygoods, salesmen, etc. ________

5. Drugstore, hardware, grocery, dime store clerks, telephone or beauty operators, dressmaker, practical nurse, etc. ________

6. Gentlemen farmers, large landowners and operators who patronize the local activities. ________

7. Managers and land operators with active urban life. ________

8. Small contractor who works at or superintends his jobs; commercial pilot; owners and operators of good mechanized farms. ________

9. Factory or mine foreman; carpenter, electr'n, plumber, welder, master mech., RR engineer and trainmen, linotype operator, printer, police captain, butcher, tailor, dry cleaner, small landowners and the "forgotten farmer" who owns a "decent" place, etc. ________

10. Apprentice to skilled trades; time-keeper, RR firemen and brakeman, tel and tel-lineman, medium-skilled factory worker, policeman, barber, gas station op'rs, bartender, liquor salesman, head waiter, tenants on good farms, owners of farms who just manage to make a living, etc. ________

11. Semi-skilled factory and production workers, warehouseman, janitor, watchman, cook, taxi and truck drivers, baggageman, delivery man, gas station attendant, waiter or waitress, etc. ________

12. Laborer, miner, mill hand, migrant worker, section hand, scrub woman, laundress. domestic servant, bus boy, etc. ________

13. Reputed lawbreakers, etc. ________

A.4.6.

PROJECT #918

MICHIGAN STATE UNIVERSITY

STAFF PERSONNEL IN HIGH SCHOOL

A. How many non-classroom teaching personnel? (combination teacher, counselors, etc., go under B below)

Type of Personnel	Full Time	Part-Time (What portion?)	Number	
			Males	Females
Curriculum Coordinator				
Librarian				
Counselers				
Principal				
Asst. Principal				
Dean of Girls				
Dean of Boys				
Diagnostician				
Psychologist				
Pupil Personnel				
Attendance Worker				
Visiting Teachers				
Supervisors				
Guidance Counselors				
Physical Handicap				
Mental Handicap				
Audio-Visual Director				
Total				

B. How many classroom teachers are employed? ____________________

Type	Number - Male	Female
Full-Time	____	______
Part-Time	____	______
TOTAL	____	______

C. Educational Levels of High School Professional Staff (includes administration and teachers)

Levels	Number - Male	Female
PhD or EdD	____	______
Masters plus 30 graduate hours	____	______
Masters	____	______
Bachelors	____	______
Non-degree	____	______
Other	____	______
TOTAL	____	______

UNITED STATE OFFICE PROJECT NO. 918

INFORMATION EMPLOYED TO CLASSIFY BUILDINGS BY "COMPACTNESS"

Name of High School ______________________________

Location ______________________________

* * *

Information

1. Total Roof area . . . . ____________ sq. ft.
   (excluding overhang and covered walkway)
2. Gymnasium Room Area . . . . ____________ sq. ft.
3. Pool Roof Area. ____________ sq. ft.
4. Auditorium Roof Area . . . . ____________ sq. ft.

* * *

Person Responding ______________________________

Architectural Firm ______________________________

Street and Number ______________________________

City and State ______________________________

* * *

Please check one of the alternative procedures below if the above is not selected.

____________ We are sending you a Final Preliminary Plan with scale.

____________ Send an Outline Plan indicating the demensions needed. I will supply information requested and return to you.

Occupations, by major occupation group	Socio-economic index
Professional, technical, and kindred workers	
Accountants and auditors	78
Actors and actresses	60
Airplane pilots and navigators	79
Architects	90
Artists and art teachers	67
Athletes	52
Authors	76
Chemists	79
Chiropractors	75
Clergymen	52
College presidents, professors, and instructors (n.e.c.)	84
Dancers and dancing teachers	45
Dentists	96
Designers	73
Dietitians and nutritionists	39
Draftsmen	67
Editors and reporters	82
Engineers, technical	85
Aeronautical	87
Chemical	90
Civil	84
Electrical	84
Industrial	86
Mechanical	82
Metallurgical and metallurgists	82
Mining	85
Not elsewhere classified	87
Entertainers (n.e.c.)	31
Farm and home management advisors	83
Foresters and conservationists	48
Funeral directors and embalmers	59
Lawyers and judges	93
Librarians	60
Musicians and music teachers	52
Natural scientists (n.e.c.)	80
Nurses, professional	46
Nurses, student professional	51
Optometrists	79
Osteopaths	96
Personnel and labor relations workers	84
Pharmacists	82
Photographers	50
Physicians and surgeons	92
Radio operators	69
Recreation and group workers	67
Religious workers	56
Social and welfare workers, except group	64
Social scientists	81
Sports instructors and officials	64

A.6.2.

Occupations, by major occupation group	Socio-economic index
Surveyors	48
Teachers (n.e.c.)	72
Technicians, medical and dental	48
Technicians, testing	53
Technicians (n.e.c.)	62
Therapists and healers (n.e.c.)	58
Veterinarians	78
Professional, technical, and kindred workers (n.e.c.)	65
Farmers and farm managers	
Farmers (owners and tenants)	14
Farm managers	36
Managers, officials, and proprietors, exc. farm	
Buyers and department heads, store	72
Buyers and shippers, farm products	33
Conductors, railroad	58
Credit men	74
Floormen and floor managers, store	50
Inspectors, public administration	63
Federal public administration and postal services	72
State public administration	54
Local public administration	56
Managers and superintendents, building	32
Officers, pilots, pursers, and engineers, ship	54
Officials & administrators (n.e.c.) public administration	66
Federal public administration and postal service	84
State public administration	66
Local public administration	54
Officials, lodge, society, union, etc.	58
Postmasters	60
Purchasing agents and buyers (n.e.c.)	77
Managers, officials, & proprietors (n.e.c.) - salaried	68
Construction	60
Manufacturing	79
Transportation	71
Telecommunications, & utilities & sanitary services	76
Wholesale trade	70
Retail trade	56
Food and dairy products stores, and milk retailing	50
General merchandise and five and ten cent stores	68
Apparel and accessories stores	69
Furniture, home furnishings, and equipment stores	68
Motor vehicles and accessories retailing	65
Gasoline service stations	31
Eating and drinking places	39
Hardware, farm implement, & bldg. material retail	64
Other retail trade	59
Banking and other finance	85
Insurance and real estate	84
Business services	60

Occupations, by major occupation group	Socio-economic index
Automobile repair services and garages	47
Miscellaneous repair services	53
Personal services	50
All other industries (incl. not reported)	62
Managers, officials, & propr's (n.e.c.) - self employed	48
Construction	51
Manufacturing	61
Transportation	43
Telecommunications, & utilities & sanitary services	44
Wholesale trade	59
Retail trade	43
Food and dairy products stores, and milk retailing	33
General merchandise and five and ten cent stores	47
Apparel and accessories stores	65
Furniture, home furnishings, and equipment stores	59
Motor vehicles and accessories retailing	70
Gasoline service stations	33
Eating and drinking places	37
Hardware, farm emplement, & bldg. material retail	61
Other retail trade	49
Banking and other finance	85
Insurance and real estate	76
Business services	67
Automobile repair services and garages	36
Miscellaneous repair services	34
Personal services	41
All other industries (incl. not reported)	49
Clerical and kindred workers	
Agents (n.e.c.)	68
Attendants and assistants, library	44
Attendants, physician's and dentist's office	38
Baggagemen, transportation	25
Bank tellers	52
Bookkeepers	51
Cashiers	44
Collectors, bill and account	39
Dispatchers and starters, vehicle	40
Express messengers and railway mail clerks	67
Mail carriers	53
Messengers and office boys	28
Office machine operators	45
Shipping and receiving clerks	22
Stenographers, typists, and secretaries	61
Telegraph messengers	22
Telegraph operators	47
Telephone operators	45
Ticket, station, and express agents	60
Clerical and kindred workers (n.e.c.)	44

Occupations, by major occupation group	Socio-economic index
Sales workers	
Advertising agents and salesmen	66
Auctioneers	40
Demonstrators	35
Hucksters and peddlers	8
Insurance agents and brokers	66
Newsboys	27
Real estate agents and brokers	62
Stock and bond salesmen	73
Salesmen and sales clerks (n.e.c.)	47
Manufacturing	65
Wholesale trade	61
Retail trade	39
Other industries (incl. not reported)	50
Craftsmen, foremen, and kindred workers	
Bakers	22
Blacksmiths	16
Boilermakers	33
Bookbinders	39
Brickmasons, stonemasons, and tile setters	27
Cabinetmakers	23
Carpenters	19
Cement and concrete finishers	19
Compositors and typesetters	52
Cranemen, derrickmen, and hoistmen	21
Decorators and window dressers	40
Electricians	44
Electrotypers and stereotypers	55
Engravers, except photoengravers	47
Excavating, grading, and road machinery operators	24
Foremen (n.e.c.)	49
Construction	40
Manufacturing	53
Metal industries	54
Machinery, including electrical	60
Transportation equipment	66
Other durable goods	41
Textiles, textile products, and apparel	39
Other nondurable goods (incl. not specified mfg.)	53
Railroads and railway express service	36
Transportation, except railroad	45
Telecommunications, & utilities & sanitary services	56
Other industries (incl. not reported)	44
Forgemen and hammermen	23
Furriers	39
Glaziers	26
Heat treaters, annealers, and temperers	22
Inspectors, scalers, and graders, log and lumber	23
Inspectors (n.e.c.)	41
Construction	46

Occupations, by major occupation group	Socio-economic index
Railroads and railway express service	41
Transport, exc. rr., communic'n, & other public util.	45
Other industries (incl. not reported)	38
Jewelers, watchmakers, goldsmiths, and silversmiths	36
Job setters, metal	28
Linemen and servicemen, telegraph, telephone, and power	49
Locomotive engineers	58
Locomotive firemen	45
Loom fixers	10
Machinists	33
Mechanics and repairmen	25
Airplane	48
Automobile	19
Office machine	36
Radio and television	36
Railroad and car shop	23
Not elsewhere classified	27
Millers, grain, flour, fee, etc.	19
Millwrights	31
Molders, metal	12
Motion picture projectionists	43
Opticians, and lens grinders and polishers	39
Painters, construction and maintenance	16
Paperhangers	10
Pattern and model makers, except paper	44
Photoengravers and lithographers	64
Piano and organ tuners and repairmen	38
Plasterers	25
Plumbers and pipe fitters	34
Pressmen and plate printers, printing	49
Rollers and roll hands, metal	22
Roofers and slaters	15
Shoemakers and repairers, except factory	12
Stationary engineers	47
Stonecutters and stone carvers	25
Structural metal workers	34
Tailors and tailoresses	23
Tinsmiths, coppersmiths, and sheet metal workers	33
Toolmaker, and die makers and setters	50
Upholsterers	22
Craftsmen and kindred workers (n.e.c.)	32
Members of the armed forces	18
Operatives and kindred workers	
Apprentices	35
Auto mechanics	25
Bricklayers and masons	32
Carpenters	31
Electricians	37
Machinists and toolmakers	41
Machanics, except auto	34

A.6.6.

Occupations, by major occupation group	Socio-economic index
Plumbers and pipe fitters	33
Building trades (n.e.c.)	29
Metal working trades (n.e.c.)	33
Printing trades	40
Other specified trades	31
Trade not specified	39
Asbestos and insulation workers	32
Attendents, auto service and parking	19
Blasters and powdermen	11
Boatmen, canalmen, and lock keepers	24
Brakemen, railroad	42
Bus drivers	24
Chainmen, rodmen, and axmen, surveying	25
Conductors, bus and street railway	30
Deliverymen and routemen	32
Dressmakers and seamstresses, except factory	23
Dyers	12
Filers, grinders, and polishers, metal	22
Fruit, nut, & vegetable graders & packers, exc. factory	10
Furnacemen, smeltermen, and pourers	18
Heaters, metal	29
Laundry and dry cleaning operatives	15
Meat cutters, except slaughter and packing house	29
Milliners	46
Mine operatives and laborers (n.e.c.)	10
Gold mining	2
Crude petroleum and natural gas extraction	38
Mining and quarrying, except fuel	12
Motormen, mine, factory, logging camp, etc.	3
Motormen, street, subway, and elevated railway	34
Oilers and greasers, except auto	15
Painters, except construction and maintenance	18
Photographic process workers	42
Power station operators	50
Sailors and deck hands	16
Sawyers	5
Spinners, textile	5
Stationary firemen	17
Switchmen, railroad	44
Taxicab drivers and chauffeurs	10
Truck and tractor drivers	15
Weavers, textile	6
Welders and flame-cutters	24
Operatives and kindred workers (n.e.c.)	18
Manufacturing	17
Durable goods	
Sawmills, planing mills, & misc. wood products	7
Sawmills, planing mills, and mill work	7
Miscellaneous wood products	9
Furniture and fixtures	9
Stone, clay, and glass products	17

Occupations, by major occupation group	Socio-economic index
Glass and glass products	23
Cement, & concrete, gypsum, & plaster products	10
Structural clay products	10
Pottery and related products	21
Misc. nonmetallic mineral & stone products	15
Metal industries	16
Primary metal industries	15
Blast furnaces, steel works, & rolling mills	17
Other primary iron and steel industries	12
Primary nonferrous industries	15
Fabricated metal ind. (incl. not spec. metal)	16
Fabricated steel products	16
Fabricated nonferrous metal products	15
Not specified metal industries	14
Machinery, except electrical	22
Agricultural machinery and tractors	21
Office and store machines and devices	31
Miscellaneous machinery	22
Electrical machinery, equipment, and supplies	26
Transportation equipment	23
Motor vehicles and motor vehicle equipment	21
Aircraft and parts	34
Ship and boat building and repairing	16
Railroad & misc. transportation equipment	23
Professional & Photographic equip., & watches	29
Professional equipment and supplies	23
Photographic equipment and supplies	40
Watches, clocks, & clockwork-operated devices	28
Miscellaneous manufacturing industries	16
Food and kindred products	16
Meat products	16
Dairy products	22
Canning & preserving fruits, veget., & sea foods	9
Grain-mill products	14
Bakery products	15
Confectionary and related products	12
Beverage industries	19
Misc. food preparations and kindred products	11
Not specified food industries	19
Tobacco manufactures	2
Textile mill products	6
Knitting mills	21
Dyeing and finishing textiles, exc. knit goods	8
Carpets, rugs, and other floor coverings	14
Yarn, thread, and fabric mills	2
Miscellaneous textile mill products	10
Apparel and other fabricated textile products	21
Apparel and accessories	22
Miscellaneous fabricated textile products	17
Paper and allied products	19
Pulp, paper, and paperboard mills	19

Occupations, by major occupation group	Socio-economic index
Paperboard containers and boxes	17
Miscellaneous paper and pulp products	19
Printing, publishing and allied industries	31
Chemicals and allied products	20
Synthetic fibers	9
Drugs and medicines	26
Paints, varnishes, and related products	15
Miscellaneous chemicals and allied products	23
Petroleum and coal products	51
Petroleum refining	56
Miscellaneous petroleum and coal products	14
Rubber products	22
Leather and leather products	16
Leather: tanned, curried, and finished	10
Footwear, except rubber	9
Leather products, except footwear	14
Not specified manufacturing industries	16
Nonmanufacturing industries (incl. not reported)	18
Construction	18
Railroads and railway express service	15
Transportation, except railroad	23
Telecommunications, & utilities & sanitary services	21
Wholesale and retail trade	17
Business and repair services	19
Personal services	11
Public administration	17
All other industries (incl. not reported)	20
Private household workers	
Housekeepers, private household	19
Living in	10
Living out	21
Laundresses, private household	12
Living in	--
Living out	12
Private household workers (n.e.c.)	7
Living in	12
Living out	6
Service workers, except private household	
Attendants, hospital and other institution	13
Attendants, professional and personal service (n.e.c.)	26
Attendants, recreation and amusement	19
Barbers, beauticians, and manicurists	17
Bartenders	19
Boarding and lodging housekeepers	30
Bootblacks	8
Charwomen and cleaners	10
Cooks, except private household	15
Counter and fountain workers	17
Elevator operators	10

Occupations, by major occupation group	Socio-economic index
Firemen, fire protection	37
Guards, watchmen, and doorkeepers	18
Housekeepers and stewards, except private household	31
Janitors and sextons	9
Marshals and constables	21
Midwives	37
Policemen and detectives	39
Government	40
Private	36
Porters	4
Practical nurses	22
Sheriffs and bailiffs	34
Ushers, recreation and amusement	25
Waiters and waitresses	16
Watchmen (crossing) and bridge tenders	17
Service workers, except private household (n.e.c.)	11
Farm laborers and foremen	
Farm foremen	20
Farm laborers, wage workers	6
Farm laborers, unpaid family workers	17
Farm service laborers, self-employed	22
Fishermen and oystermen	10
Garage laborers, and car washers and greasers	8
Gardeners, except farm, and groundskeepers	11
Longshoremen and stevedores	11
Lumbermen, raftsmen, and wood choppers	4
Teamsters	8
Laborers (n.e.c.)	
Manufacturing	8
Durable goods	
Sawmills, planing mills, & misc. wood products	3
Sawmills, planing mills, and mill work	3
Miscellaneous wood products	2
Furniture and fixtures	5
Stone, clay, and glass products	7
Glass and glass products	14
Cement, & concrete, gypsum, & plaster prod.	5
Structural clay products	5
Pottery and related products	7
Misc. nonmetallic mineral & stone products	5
Metal industries	7
Primary metal industries	7
Blast furnaces, steel works, & rolling mills	9
Other primary iron and steel industries	4
Primary nonferrous industries	6
Fabricated metal ind. (incl. not spec. metal)	7
Fabricated steel products	7
Fabricated nonferrous metal products	10
Not specified metal industries	9
Machinery, except electrical	11

Occupations, by major occupation group	Socio-economic index
Agricultural machinery and tractors	14
Office and store machines and devices	17
Miscellaneous machinery	10
Electrical machinery, equipment, and supplies	14
Transportation equipment	11
Motor vehicles and motor vehicle equipment	13
Aircraft and parts	15
Ship and boat building and repairing	2
Railroad & misc. transportation equipment	8
Professional & photographic equip., & watches	11
Professional equipment and supplies	10
Photographic equipment and supplies	16
Watches, clocks, & clockwork-operated devices	--
Miscellaneous manufacturing industries	12
Nondurable goods	
Food and kindred products	9
Meat products	8
Dairy products	13
Canning & preserving fruits, veg., & sea foods	6
Grain-mill products	6
Bakery products	10
Confectionery and related products	10
Beverage industries	16
Misc. food preparations and kindred products	5
Not specified food industries	14
Tobacco manufactures	0
Textile mill products	3
Knitting mills	4
Dyeing and finishing textiles, exc. knit goods	9
Carpets, rugs, and other floor coverings	14
Yarn, thread, and fabric mills	1
Miscellaneous textile mill products	6
Apparel and other fabricated textile products	9
Apparel and accessories	11
Miscellaneous fabricated textile products	6
Paper and allied products	7
Pulp, paper, and paperboard mills	6
Paperboard containers and boxes	10
Miscellaneous paper and pulp products	8
Printing, publishing, and allied industries	23
Chemicals and allied products	8
Synthetic fibers	4
Drugs and medicines	22
Paints, varnishes, and related products	8
Miscellaneous chemicals and allied products	8
Petroleum and coal products	22
Petroleum refining	26
Miscellaneous petroleum and coal products	3
Rubber products	12
Leather and leather products	6
Leather: tanned, curried, and finished	2

Occupations, by major occupation group	Socio-economic index
Footwear, except rubber	10
Leather products, except footwear	12
Not specified manufacturing industries	8
Manufacturing industries (incl. not reported)	7
Construction	7
Railroads and railway express service	3
Transportation, except railroad	9
Telecommunications, & utilities and sanitary services	6
Wholesale and retail trade	12
Business and repair services	9
Personal services	5
Public administration	7
All other industries (incl. not reported)	6
Occupation not reported	19

U. S. Office Project 918

College of Education

Michigan State University

...About Project 918

Your school has been chosen as one of 30 representative new high schools in the United States. Each of these schools will be studied by a research team from Michigan State University. Funds for the project are provided by the Congress of the United States through the U. S. Office of Education.

The purpose of Project 918 is to see if there are any real differences in the way teachers and students work and study together in different kinds of high school buildings.

If such differences can be found, it will point the way to the design of better high school buildings, and consequently better high school teaching and learning.

In the next two-hour period, would you please help in this important study by carefully and honestly completing each of the following questionnaires and inventories. Each questionnaire is self-explanatory. You should proceed from one to the other without waiting for additional directions. All information will be kept in strictest confidence. Your responses will be seen only by a research team at Michigan State University.

Thank you for your cooperation.

K. T. Hereford
Project Coordinator
Michigan State University

A.7.2.

GENERAL INFORMATION

Name (Please Print) ______________________________
Last   First

1. How many years of teaching experiences have you had? (check one)

   less than 1 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5-9 ___ 10-15 ___ 16-20 ___ 21 or more___

2. What is your age? (check one) 20-24 ___ 25-29 ___ 30-34 ___ 35-39 ___ 40-44 ___ 45-49 ___ 50-59 ___ 60 or more ___

3. A. What is your sex? Male ___ Female ___ B. Are you married? Yes ___ No ___

4. How many years have you been employed on this high school staff?

   less then 1 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6-9 ___ 10-15 ___ 16-20 ___ 21 or more ___

5. What is the highest academic degree that you hold?

   Bachelors ___ Masters ___ Doctorate ___ Others (specify) ___________

6. If you teach: List those subjects and grade levels that you are now teaching.

Subject	Grade Level

7. What is your father's occupation? (If deceased, what was it? Please be precise.)

   ____

8. If you are married: What is your spouse's occupation? ______________

9. Which of the following tasks involved in teaching do you find most difficult? (check one)

   ___1. preparing lesson plans
   ___2. evaluating student performance
   ___3. introducing new teaching techniques
   ___4. working on faculty committee
   ___5. being accepted by student body
   ___6. relating yourself to the staff

10. Which of the following tasks do you find to be easiest? (check one)

___1. preparing lesson plans
___2. evaluating student performance
___3. introducing new teaching techniques
___4. working on faculty committee
___5. being accepted by student body
___6. relating yourself to the staff

11. In what state were you born? ____________________

12. What is your best estimate of the total number of different students which you now have enrolled in all of your classes? __________ different students.
(number)

A.7.4.

CLASSROOM AESTHETIC SCALE

Would you describe the classroom in which you are now located? Check (x) the one in each of the following 19 pairs of adjectives which you believe best describes classroom. Please do not leave out any of the 19 choices.

1. ____ dim..............................bright ____

2. ____ colorful..........................drab ____

3. ____ unfriendly....................friendly ____

4. ____ clean...........................dirty ____

5. ____ inconvenient.............convenient ____

6. ____ factorylike.............residential ____

7. ____ interesting...........uninteresting ____

8. ____ good................................bad ____

9. ____ different.........indistinguishable ____

10. ____ artistic.......................clumsy ____

11. ____ active.........................passive ____

12. ____ uninviting.......................warm ____

13. ____ weak..........................strong ____

14. ____ adultlike...................youthful ____

15. ____ soft...............................hard ____

16. ____ tiring.........................restful ____

17. ____ institutional............residential ____

18. ____ comfortable...........uncomfortable ____

19. ____ considerate.............indifferent ____

Before turning the page, write in the number of this classroom, and the subject taught here.

Room Number: ____

Subject Taught: ____

A.7.5.

SCHOOL BUILDING AESTHETIC SCALE

You have already described the aesthetics of your classroom. Think now in terms of your high school building as a whole.

How would you describe the aesthetics of your high school building? Check (x) the one word in each of the following 19 pairs of adjectives which you believe best describes your building? Please do not leave out any of the 19 choices.

1. ____ uninviting..........................warm ____

2. ____ adultlike.....................youthful ____

3. ____ comfortable.............uncomfortable ____

4. ____ interesting.............uninteresting ____

5. ____ unfriendly..................friendly ____

6. ____ factorylike...............residential ____

7. ____ weak...........................strong ____

8. ____ good..............................bad ____

9. ____ dim............................bright ____

10. ____ colorful.........................drab ____

11. ____ clean...........................dirty ____

12. ____ indistinguishable...........different ____

13. ____ artistic.......................clumsy ____

14. ____ active.........................passive ____

15. ____ soft..............................hard ____

16. ____ tiring........................restful ____

17. ____ inconvenient................convenient ____

18. ____ institutional.............residential ____

19. ____ considerate...............indifferent ____

A.7.6.

ACTIVITY SCOPE SCALE

Teachers are consulted about a variety of professional issues. Below are nine hypothetical situations in which teachers may be consulted by administrators in a high school. To what extent do you believe that you would be consulted professionally by your administrators in each of the nine situations if they were to occur in your school. Check the response which most closely matches your belief about each situation.

	ALWAYS	FREQUENTLY	SELDOM	NEVER
EXAMPLE: When the evaluation of the school curriculum is undertaken.	___	X	___	___
When a task such as the selection of a new textbook for a course you are teaching is undertaken.	___	___	___	___
When a problem such as determining the responsibilities of the high school teacher in community affairs is being considered.	___	___	___	___
When a problem such as adding a new unit into a course outline that you are teaching is being considered.	___	___	___	___
In deciding whether or not your class should take a field trip.	___	___	___	___
In deciding such an issue as keeping a student from participating in special activities for uncooperative behavior.	___	___	___	___
When a question concerning the adequacy of a course outline that you use in teaching is brought up.	___	___	___	___
When a problem such as determining either the maximum or minimum homework load for students is brought up.	___	___	___	___
When a problem such as determining the grading standards to be employed by the high school staff is brought up.	___	___	___	___
When a problem such as determining the kinds of instructional materials needed by teachers is considered.	___	___	___	___

A.7.7.

SOURCES OF HELP INVENTORY

Teachers, like other professional persons, frequently turn to other qualified persons for assistance on professional and personal concerns. In each of the following hypothetical problem situations, would you indicate the one person to whom you would most likely turn for assistance. Remember that your response will not be seen by any persons other than the Michigan State University research team.

1. If you were having difficulty in preparing a lesson plan, to whom would you most likely turn for advice or assistance? (check one)

____1. principal
____2. vice-principal
____3. teacher-friend
____4. student-group
____5. department head
____6. another teacher teaching the same subject
____7. out-of-school-friend
____8. house administrative leader
____9. other (identify)____________________
____

2. If you were having difficulty evaluating a student's performance, to whom would you most likely turn for advice or assistance? (check one)

____1. principal
____2. vice-principal
____3. teacher-friend
____4. student-group
____5. department head
____6. another teacher teaching the same subject
____7. out-of-school friend
____8. house administrative leader
____9. other (identify) ____________________
____

3. If you were having difficulty introducing a new teaching technic, to whom would you most likely turn for advice or assistance? (check one)

____1. principal
____2. vice-principal
____3. teacher-friend
____4. student-group
____5. department head
____6. another teacher teaching the same subject
____7. out-of-school friend
____8. house administrative leader
____9. other (identify) ____________________
____

4. If you were having difficulty working on a faculty committee, to whom would you most likely turn for advice or assistance? (check one)

____1. principal
____2. vice-principal
____3. teacher-friend
____4. student-group
____5. department head
____6. another teacher teaching the same subject
____7. out-of-school friend
____8. house administrative leader
____9. other (identify) ____________________
____

5. If you were having difficulty feeling accepted by some of your students, to whom would you most likely turn for advice or assistance? (check one)

____1. principal
____2. vice-principal
____3. teacher-friend
____4. student group
____5. department head
____6. another teacher teaching the same subject
____7. out-of-school friend
____8. house administrative leader
____9. other (identify) ____________________
____

A.7.8.

6. If you were having difficulty with your relationships with another staff member, to whom would you most likely turn for advice or assistance? (check one)

____1. principal
____2. vice-principal
____3. teacher-friend
____4. student-group
____5. department head
____6. another teacher teaching the same subject
____7. out-of-school friend
____8. house administrative leader
____9. other (identify) ____________________

____

A.7.9.

HOW WELL DO WE KNOW STUDENTS

One of the difficult tasks of the high school teacher who has as many as 90 to 120 different students each day is to get to know these students.

As a simple challenge to your own knowledge of your students, would you please choose the one (1) student from all of those you are now teaching in grades 9, 10, 11, or 12 whom you feel you know best.

Please try to supply the requested information about this student from memory. Please do not consult your cumulative records or other sources for help. The questions are so designed that it will be impossible for most teachers to supply all requested information accurately. Please, therefore, do not feel embarrassed if you cannot answer all questions to your satisfaction from memory.

1. Name of student ______________________________
   Last First Middle

2. How long have you know this student? (check) less than 1 year ___ 1 to 3 years ___ more than 3 years ___

3. Do you know this student from out-of-school contacts? Yes ___ No ___
   If yes, through family? ___ neighborhood ___ other? ___________

4. Age of student (check) ___ 14 ___ 15 ___ 16 ___ 17 ___ 18; Grade of student (check) ___ 9 ___ 10 ___ 11 ___ 12; Sex (check) ___ Male ___ Female

5. Occupation of student's father ______________________

6. Number of children in student's family. Boys ___ Girls ___

7. Do the parents hope this student will go to college? Yes ___ No ___

8. Does this student plan to go to college? Yes ___ No ___

9. Which of the following subjects does this student find easiest? (check one)
   English ___ Mathematics ___ History ___ Science ___ Art ___

10. Which of the following subjects does this student find hardest? (check one)
    English ___ Mathematics ___ History ___ Science ___ Art ___

11. Does this student have a hobby? Yes ___ No ___ If yes, what is it? ________
    If there is several, give the one in which he or she is most interested.

12. Is this student "going steady" at the present time? Yes ___ No ___

13. How would you classify this student? (check the one response closest to your own opinion)

    ___ a. one of the top students in the school
    ___ b. about an average student
    ___ c. a below-average student

A.7.10.

STAFF PERSONNEL

1. How many teachers are there on your high school staff? ________ number

2. How many of these teachers do you really think of as a good friend? ________ number

3. Of the remaining teachers, how many do you really enjoy working with? ________ number

PERSONAL CONTACT CHECKLIST

How frequently do you get to discuss your professional concerns with each of the following persons? (check one response for each person)

	2 or 3 Times Each Day	Nearly Everyday	Frequently	Occasionally	Rarely
1. Principal	____	____	____	____	____
2. Vice-Principal	____	____	____	____	____
3. Guidance Counselor	____	____	____	____	____
4. "House" Administrator (if any)	____	____	____	____	____
5. Department Head (if any)	____	____	____	____	____
6. Teacher of same subject	____	____	____	____	____
7. Teacher of other subjects	____	____	____	____	____

What do you consider to be three chief or major problems which teachers have in your school?

1. ____

2. ____

3. ____

PERSONAL CHARACTERISTICS CHECK-LIST

Teachers and students have many different personal traits. It would help us develop a better understanding of your school, if you would describe yourself as you believe you really are. Please remember that all of your responses are kept in strictest confidence. On the next two pages are 49 words which are commonly used to describe people. Try to describe yourself as accurately as possible by completing the two columns of words.

In Column I, please write by each word how much of the time you believe that you are this kind of person. Choose the one response (1 through 5) which best describes your belief about yourself. When you have completed all 49 words in Column I, then go to Column II.

In Column II, indicate for each of the 49 words how you feel about yourself in terms of each trait. Choose the one response (1 through 5) which best describes your feeling.

In the example, the person responding has said in effect:

In Column I: I am an academic kind of person a good deal of the time (4); and in

Column II: I like myself in this respect. (4)

Please proceed to complete Columns I and II for each trait word.

A.7.12

TRAITS:	**Column I** How much of the time am I this kind of person?	**Column II** How do I feel about being this kind of person?
RESPONSES:	1. Seldom 2. Occasionally 3. About half the time 4. Good deal of the time 5. Most of the time	1. Very much dislike 2. Dislike 3. Neither like nor dislike 4. Like 5. Very much like
EXAMPLE: academic	4	4
1. acceptable		
2. accurate		
3. alert		
4. ambitious		
5. annoying		
6. busy		
7. calm		
8. charming		
9. clever		
10. competent		
11. confident		
12. considerate		
13. cruel		
14. democratic		
15. dependable		
16. economical		
17. efficient		
18. fearful		
19. friendly		
20. fashionable		
21. helpful		
22. intellectual		
23. kind		
24. logical		
25. meddlesome		
26. merry		
27. mature		
28. nervous		
29. normal		
30. optimistic		
31. poised		
32. purposeful		
33. reasonable		

34. reckless ______ ______
35. responsible ______ ______
36. sarcastic ______ ______
37. sincere ______ ______
38. stable ______ ______
39. studious ______ ______
40. successful ______ ______
41. stubborn ______ ______
42. tactful ______ ______
43. teachable ______ ______
44. useful ______ ______
45. worthy ______ ______
46. broad-minded ______ ______
47. businesslike ______ ______
48. competitive ______ ______
49. fault-finding ______ ______

A.7.14

CHARACTERISTICS OF OTHERS CHECK-LIST

Since a high school is made of people who work and study together, our understanding of your school would be more complete if we could have your beliefs about the kinds of people in your school.

Please think about the persons whom you feel are your friends. Although your friends may be somewhat different in many ways, try to think of the 'average person" among your friends; or think of "your friends in general." Then try to put yourself in the place of this "average friend" and fill out the same two column check-list that you completed for yourself.

TRAITS:	Column I	Column II
	How much of the time do your "friends in general" believe themselves to be this kind of person?	How do your "friends in general" feel about themselves in this respect.
	1. Seldom 2. Occasionally 3. About half the time 4. Good deal of the time 5. Most of the time	1. Very much dislike 2. Dislike 3. Neither like nor dislike 4. Like 5. Very much like
1. acceptable	______	______
2. accurate	______	______
3. alert	______	______
4. ambitious	______	______
5. annoying	______	______
6. busy	______	______
7. calm	______	______
8. charming	______	______
9. clever	______	______
10. competent	______	______
11. confident	______	______
12. considerate	______	______
13. cruel	______	______
14. democratic	______	______
15. dependable	______	______
16. economical	______	______
17. efficient	______	______
18. fearful	______	______
19. friendly	______	______
20. fashionable	______	______
21. helpful	______	______
22. intellectual	______	______
23. kind	______	______
24. logical	______	______

25. meddlesome ______ ______
26. merry ______ ______
27. mature ______ ______
28. nervous ______ ______
29. normal ______ ______
30. optimistic ______ ______
31. poised ______ ______
32. purposeful ______ ______
33. reasonable ______ ______
34. reckless ______ ______
35. responsible ______ ______
36. sarcastic ______ ______
37. sincere ______ ______
38. stable ______ ______
39. studious ______ ______
40. successful ______ ______
41. stubborn ______ ______
42. tactful ______ ______
43. teachable ______ ______
44. useful ______ ______
45. worthy ______ ______
46. broad-minded ______ ______
47. businesslike ______ ______
48. competitive ______ ______
49. fault-finding ______ ______

A.7.16

HIGH SCHOOL CHARACTERISTICS CHECK-LIST

First, in Column I, describe how your high school appears to be at this time in terms of each of the 16 characteristics. To do so, decide how much of the time each of the characteristics appears to be adequate in your high school. At the top of Column I is a list of five possible responses. Choose the response which best describes how much of the time each characteristic is adequate in your high school.

Second, in Column II, describe how you feel about your high school as it appears to be at this time. To do so, decide how you feel about each of the characteristics which you have described in Column I. At the top of Column II is a list of five possible responses. Choose the one response which best describes how you feel about each characteristic.

Characteristic of The High School	Column I How much of the time do you believe each of the following characteristics of your high school is adequate?	Column II How do you feel about the adequacy of each of the characteristics of your high school?
	1. Seldom 2. Occasionally 3. About half the time 4. Good deal of the time 5. Most of the time	1. Very much dislike 2. Dislike 3. Neither like nor dislike 4. Like 5. Very much like
EXAMPLE: Academic Freedom	4	4
1. Homework	____	____
2. Library services	____	____
3. Discipline	____	____
4. Cooperation among teachers	____	____
5. Quality of instruction	____	____
6. Teacher-Student relations	____	____
7. Administrator-Teacher relations	____	____
8. Counseling and guidance services	____	____
9. Quality of student body	____	____
10. Quality of student leadership	____	____
11. Quality of student organizations	____	____
12. Cooperation of parents	____	____
13. Quality of building and facilities	____	____
14. Academic standing of high school	____	____
15. Relationships with other		

This completes your part in the U. S. Office Project 918. The information will be coded on IBM cards and tabulated along with those of nearly 50,000 other students and teachers in the United States. Thank you again for your splendid cooperation.

Michigan State University
Research Staff

U. S. Office Project 918

College of Education

Michigan State University

...About Project 918

Your school has been chosen as one of 30 representative new high schools in the United States. Each of these schools will be studied by a research team from Michigan State University. Funds for the project are provided by the Congress of the United States through the U. S. Office of Education.

The purpose of Project 918 is to see if there are any real differences in the way teachers and students work and study together in different kinds of high school buildings.

If such differences can be found, it will point the way to the design of better high school buildings, and consequently better high school teaching and learning.

In the next two-hour period, would you please help in this important study by carefully and honestly completing each of the following questionnaires and inventories. Each questionnaire is self-explanatory. You should proceed from one to the other without waiting for additional directions. All information will be kept in strictest confidence. Your responses will be seen only by a research team at Michigan State University.

Thank you for your cooperation.

K. T. Hereford
Project Coordinator
Michigan State University

A.8.2.

GENERAL INFORMATION

1. Name ____
   Last   First   Middle

2. Number of years in this school (count present year as one) (check)
   1 ____ 2 ____ 3 ____ 4 ____

3. Age ____ Grade (check) 9 ___ 10 ___ 11 ___ 12 ___ (check) Male ____ Female ___

4. Number of brothers ____________ sisters ____________

5. What is your father's occupation (if deceased, what was it)? ______________
   ____
   a. Does he get paid by salary? Yes ________ No ________
   b. If yes, who does he work for? ______________________
   c. Does he own a business? Yes ________ No ________
   d. Does he have any people under him? Yes ______ No ______
   e. If yes, about how many? ______________________

6. Do you plan to go to college? (check) Yes _____ No _____

7. Do your parents hope you will go to college? (check) Yes ____ No _____

8. Of the following subjects, which do you find easiest? (check one)
   English ____ Mathematics ____ History ____ Science ____ Art ____

9. Of the following subjects, which do you find hardest? (check one)
   English ____ Mathematics ____ History ____ Science ____ Art ____

10. Do you have a hobby? Yes ___ No ___ If yes, what is it? ______________
    If you have more than one, give the one in which you are most interested.

11. Name the teacher whom you feel knows you best. (Please print)

    ____

A.8.3.

CLASSROOM AESTHETIC SCALE

How would you describe the classroom in which you are now located? Check (x) the one word in each of the following 19 pairs of adjectives which you believe best describes this classroom. Please do not leave out any of the 19 choices.

1. ____ dim...................bright ____

2. ____ colorful........................drab ____

3. ____ unfriendly..................friendly ____

4. ____ clean............................dirty ____

5. ____ inconvenient...............convenient ____

6. ____ factorylike...............residential ____

7. ____ interesting.............uninteresting ____

8. ____ good..............................bad ____

9. ____ different...........indistinguishable ____

10. ____ artistic.......................clumsy ____

11. ____ active.......................passive ____

12. ____ uninviting.........................warm ____

13. ____ weak...........................strong ____

14. ____ adultlike....................youthful ____

15. ____ soft.............................hard ____

16. ____ tiring.........................restful ____

17. ____ institutional............residential ____

18. ____ comfortable............uncomfortable ____

19. ____ considerate...............indifferent ____

Before turning the page, write in the number of this classroom, and the subject taught here.

Room Number: ___________ Subject Taught: _________

A.8.4.

SCHOOL BUILDING AESTHETIC SCALE

You have already describe the aesthetics of your classroom. Think now in terms of your high school building as a whole.

How would you describe the aesthetics of your high school building? Check (x) the one word in each of the following 19 pairs of adjectives which you believe best describes your building? Please do not leave out any of the 19 choices.

1. ____ **uninviting....................warm** ____
2. ____ **adultlike.................youthful** ____
3. ____ **comfortable..........uncomfortable** ____
4. ____ **interesting..........uninteresting** ____
5. ____ **unfriendly................friendly** ____
6. ____ **factorylike............residential** ____
7. ____ **weak........................strong** ____
8. ____ **good..........................bad** ____
9. ____ **dim.........................bright** ____
10. ____ **colorful......................drab** ____
11. ____ **clean........................dirty** ____
12. ____ **indistinguishable........different** ____
13. ____ **artistic....................clumsy** ____
14. ____ **active.....................passive** ____
15. ____ **soft..........................hard** ____
16. ____ **tiring.....................restful** ____
17. ____ **inconvenient............convenient** ____
18. ____ **institutional..........residential** ____
19. ____ **considerate............indifferent** ____

A.8.5.

SOURCES OF HELP INVENTORY

Students, like eveyone else, frequently turn to other persons for assistance on problems and personal concerns. In each of the following imaginary problem situations, would you indicate the one person to whom you would most likely turn for assistance. Remember that your responses will not be seen by any persons other than the Michigan State University research team.

1. If you were having difficulty with your studeies, to whom would you most likely turn for advice or assistance. (check one)

____1. house or homeroom teacher
____2. student friend
____3. principal
____4. vice-principal
____5. counselor
____6. a friend from out of school
____7. student organization
____8. parents
____9. other (please identify) ____________

2. If you were having difficulty getting teacher understanding to whom would you most likely turn for advice or assistance. (check one)

____1. house or homeroom teacher
____2. student friend
____3. principal
____4. vice-principal
____5. counselor
____6. a friend from out of school
____7. student organization
____8. parents
____9. other (pleased identify) ____________

3. If you were having difficulty in getting along with other students, to whom would you most likely turn for advice or assistance. (check one)

____1. house or homeroom teacher
____2. student friend
____3. principal
____4. vice-principal
____5. counselor
____6. a friend from out of school
____7. student organization
____8. parents
____9. other (please identify) ____________

4. If you were having difficulty in participating in student activities, to whom would you turn for advice or assistance. (check one)

____1. house or homeroom teacher
____2. student friend
____3. principal
____4. vice-principal
____5. counselor
____6. a friend from out of school
____7. student organization
____8. parents
____9. other (please identify) ____________

5. If you were having difficulty deciding on a high school course to take, to whom would you turn for advice or assistance. (check one)

____1. house or homeroom teacher
____2. student friend
____3. principal
____4. vice-principal
____5. counselor
____6. a friend from out of school
____7. student organization
____8. parents
____9. other (please identify) ____________

6. If you were having difficulty in selecting a college or vocation to whom would you turn for advice or assistance. (check one)

____1. house or homeroom teacher
____2. student friend
____3. principal
____4. vice-principal
____5. counselor
____6. a friend from out of school
____7. student organization
____8. parents
____9. other (please specify) ______________
____

OCCUPATIONAL ASPIRATION SCALE

This set of questions concerns your interest in different kinds of jobs. There are eight questions. Each one asks you to choose one job out of ten presented.

Read each question carefully. They are all different. Answer each one the best you can. Don't Omit Any.

1. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU YOU CAN GET when your SCHOOLING IS OVER?

1.1 ____ Lawyer
1.2 ____ Welfare worker for a city government
1.3 ____ United States representative in Congress
1.4 ____ Corporal in the Army
1.5 ____ United States Supreme Court Justice
1.6 ____ Night watchman
1.7 ____ Sociologist
1.8 ____ Policeman
1.9 ____ County agricultural agent
1.10 ____ Filling station attendant

2. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

2.1 ____ Member of the board of directors of a large corporation
2.2 ____ Undertaker
2.3 ____ Banker
2.4 ____ Machine operator in a factory
2.5 ____ Physician (doctor)
2.6 ____ Clothes presser in a laundry
2.7 ____ Accountant for a large business
2.8 ____ Railroad conductor
2.9 ____ Railroad engineer
2.10 ____ Singer in a night club

3. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

3.1 ____ Nuclear physicist
3.2 ____ Reporter for a daily newspaper
3.3 ____ County judge
3.4 ____ Barber
3.5 ____ State governor
3.6 ____ Soda fountain clerk
3.7 ____ Biologist
3.8 ____ Mail carrier
3.9 ____ Official of an international labor union
3.10 ____ Farm hand

4. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

4.1 ____ Psychologist
4.2 ____ Manager of a small store in a city
4.3 ____ Head of a department in state government
4.4 ____ Clerk in a store
4.5 ____ Cabinet member in the federal government
4.6 ____ Janitor
4.7 ____ Musician in a symphony orchestra
4.8 ____ Carpenter
4.9 ____ Radio announcer
4.10 ____ Coal miner

A.8.8.

5. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 years old?

5.1 ____ Civil engineer
5.2 ____ Bookkeeper
5.3 ____ Minister or priest
5.4 ____ Streetcar motorman or city bus driver
5.5 ____ Diplomat in the United States Foreign Service
5.6 ____ Sharecropper (one who owns no livestock or farm machinery, and does not manage the farm)
5.7 ____ Author of novels
5.8 ____ Plumber
5.9 ____ Newspaper columnist
5.10 ____ Taxi driver

6. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

6.1 ____ Airline pilot
6.2 ____ Insurance agent
6.3 ____ Architect
6.4 ____ Milk route man
6.5 ____ Mayor of a large city
6.6 ____ Garbage collector
6.7 ____ Captain in the army
6.8 ____ Garage mechanic
6.9 ____ Owner-operator of a printing shop
6.10 ____ Railroad section hand

7. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?

7.1 ____ Artist who paints pictures that are exhibited in galleries
7.2 ____ Traveling salesman for a wholesale concern
7.3 ____ Chemist
7.4 ____ Truck driver
7.5 ____ College professor
7.6 ____ Street sweeper
7.7 ____ Building contractor
7.8 ____ Local official of a labor union
7.9 ____ Electrician
7.10 ____ Restaurant waiter

8. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

8.1 ____ Owner of a factory that employs about 100 people
8.2 ____ Playground director
8.3 ____ Dentist
8.4 ____ Lumberjack
8.5 ____ Scientist
8.6 ____ Shoeshiner
8.7 ____ Public School teacher
8.8 ____ Owner-operator of a lunch stand
8.9 ____ Trained machinist
8.10 ____ Dock worker

A. The occupations which I have thought about going into are: 1. ____________
2. ____________ 3. ____________ 4. ____________

B. The occupation that I plan to follow: (Indicate a kind of job) ____________

C. If I were absolutely free to go into any kind of work I wanted, my choice would be: ____________

D. The type of work I would like to be doing when I am 30 years old is: ____________

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SOCIAL SCALE

A. List the names of your two best friends that are of your own age group. (Please Print)

1. ______________________ Where did you get to know this friend? (check one)
Last name First name
Classes together ______ Live in my neighborhood ______ Church ______
School club or activities ______ Out-of-school club ______ Other ______

2. ______________________ Where did you get to know this friend? (Check one)
Last name First name
Classes together ______ Live in my neighborhood ______ Church ______
School club or activities ______ Out-of-school ______ Other ______

B. Information concerning the class in which you are presently located.

1. How many students are there in the class you are taking this hour? ______ number

2. How many of these students do you generally think of as a good friend? ______ number

3. Of the remaining students, how many would you be willing to have as a good friend? ______ number

C. List the names of two adults you like best. Not parents or relatives. (Please Print)

1. ______________________ Where did you get to know this person? (check one)
Last name First name
In-school activities ______ Out-of-school activities ______
What does this person do for a living? ______________________

2. ______________________ Where did you get to know this person? (check one)
Last name First name
In school activities ______ Out-of-school activities ______
What does this person do for a living? ______________________

D. List the names of the two outstanding student leaders in your school. (Please Print) Check the grade in which each student leader is enrolled.

1. ______________________ Last name First name — Sex M F (circle one) — 9 10 11 12 Grade (Circle one)

2. ______________________ Last name First name — Sex M F (circle one) — 9 10 11 12 Grade (Circle one)

E. How frequently do you get to talk with each of the following persons about your school work or personal problems? (check one response for each person)

A.8.10.

	2 or 3 Times Each Day	Nearly Everyday	Frequently	Occasionally	Rarely
Principal	____	____	____	____	____
Assistant Principal	____	____	____	____	____
Homeroom Teacher	____	____	____	____	____
Your Guidance Counselor	____	____	____	____	____
Librarian	____	____	____	____	____

F. Building Information

1. How many different subjects would you normally have today?

(circle one) 1 2 3 4 5 6 7

2. In how many different classrooms would you normally have classes today?

Note: include study hall and gym. (circle one) 1 2 3 4 5 6 7

3. If your high school building is more than one story high, how many classes would you normally have today on the:

a) first floor ________ b) second floor ________ c) third floor ___

4. If your school has two or more buildings, how many classes would you normally have today in each of the different buildings?

Name of Building	**Number of Classes**
1. ________________________	______
2. ________________________	______
3. ________________________	______
4. ________________________	______

G. What do you believe are the three chief or major problems which students have in school?

1. ____

2. ____

3. ____

PERSONAL CHARACTERISTICS CHECK-LIST

Teachers and students have many different personal traits. It would help us develop a better understanding of your school, if you would describe yourself as you believe you really are. Please remember that all of your responses are kept in strictest confidence. On the next two pages are 49 words which are commonly used to describe people. Try to describe yourself as accurately as possible by completing the two columns of words.

In Column I, please write by each word how much of the time you believe that you are this kind of person. Choose the one response (1 through 5) which best describes your belief about yourself. When you have completed all 49 words in Column I, then go to Column II.

In Column II, indicate for each of the 49 words how you feel about yourself in terms of each trait. Choose the one response (1 through 5) which best describes your feeling.

In the example, the person responding has said in effect:

In Column I: I am an academic kind of person a good deal of the time (4); and in

Column II: I like myself in this respect. (4)

Please proceed to complete Columns I and II for each trait word

TRAITS:	**Column I**	**Column II**
	How much of the time am I this kind of person?	**How do I feel about being this kind of person?**
RESPONSES:	**1. Seldom** **2. Occasionally** **3. About half the time** **4. Good deal of the time** **5. Most of the time**	**1. Very much dislike** **2. Dislike** **3. Neither like nor dislike** **4. Like** **5. Very much like**
EXAMPLE: academic	**4**	**4**
1. acceptable	____	____
2. accurate	____	____
3. alerk	____	____
4. ambitious	____	____
5. annoying	____	____
6. busy	____	____
7. calm	____	____
8. charming	____	____
9. clever	____	____
10. competent	____	____
11. confident	____	____
12. considerate	____	____
13. cruel	____	____
14. democratic	____	____
15. dependable	____	____
16. economical	____	____
17. efficient	____	____
18. fearful	____	____
19. friendly	____	____
20. fashionable	____	____
21. helpful	____	____
22. intellectual	____	____
23. kind	____	____
24. logical	____	____
25. meddlesome	____	____
26. merry	____	____
27. mature	____	____
28. nervous	____	____
29. normal	____	____
30. optimistic	____	____
31. poised	____	____
32. purposeful	____	____
33. reasonable	____	____

34. reckless	____	____
35. responsible	____	____
36. sarcastic	____	____
37. sincere	____	____
38. stable	____	____
39. studious	____	____
40. successful	____	____
41. stubborn	____	____
42. tactful	____	____
43. teachable	____	____
44. useful	____	____
45. worthy	____	____
46. broad-minded	____	____
47. businesslike	____	____
48. competitive	____	____
49. fault-finding	____	____

A.8.14.

CHARACTERISTICS OF OTHERS CHECK-LIST

Since a high school is made of people who work and study together, our understanding of your school would be more complete if we could have your beliefs about the kinds of people in your school.

Please think about the persons whom you feel are your friends. Although your friends may be somewhat different in many ways, try to think of the "average person" among your friends; or think of "your friends in general." Then try to put yourself in the place of this "average friend" and fill out the same two column check-list that you completed for yourself.

TRAITS:	Column I	Column II
	How much of the time do your "friends in general" believe themselves to be this kind of person?	How do your "friends in general" feel about themselves in this respect.
	1. Seldom 2. Occasionally 3. About half the time 4. Good deal of the time 5. Most of the time	1. Very much dislike 2. Dislike 3. Neither like nor dislike 4. Like 5. Very much like

1. acceptable ______ ______
2. accurate ______ ______
3. alert ______ ______
4. ambitious ______ ______
5. annoying ______ ______
6. busy ______ ______
7. calm ______ ______
8. charming ______ ______
9. clever ______ ______
10. competent ______ ______
11. confident ______ ______
12. considerate ______ ______
13. cruel ______ ______
14. democratic ______ ______
15. dependable ______ ______
16. economical ______ ______
17. efficient ______ ______
18. fearful ______ ______
19. friendly ______ ______
20. fashionable ______ ______
21. helpful ______ ______
22. intellectual ______ ______
23. kind ______ ______
24. logical ______ ______
25. meddlesome ______ ______
26. merry ______ ______

27. mature ______ ______
28. nervous ______ ______
29. normal ______ ______
30. optimistic ______ ______
31. poised ______ ______
32. purposeful ______ ______
33. reasonable ______ ______
34. reckless ______ ______
35. responsible ______ ______
36. sarcastic ______ ______
37. sincere ______ ______
38. stable ______ ______
39. studious ______ ______
40. successful ______ ______
41. stubborn ______ ______
42. tactful ______ ______
43. teachable ______ ______
44. useful ______ ______
45. worthy ______ ______
46. broad-minded ______ ______
47. businesslike ______ ______
48. competitive ______ ______
49. fault-finding ______ ______

A.8.16.

HIGH SCHOOL CHARACTERISTICS CHECK-LIST

First, in Column I, describe how your high school appears to be at this time in terms of each of the 16 characteristics. To do so, decide how much of the time each of the characteristics appears to be adequate in your high school. At the top of Column I is a list of five possible responses. Choose the response which best describes how much of the time each characteristic is adequate in your high school.

Second, in Column II, describe how you feel about your high school as it appears to be at this time. To do so, decide how you feel about each of the characteristics which you have described in Column I. At the top of Column II is a list of five possible responses. Choose the one response which best describes how you feel about each characteristic.

Characteristic of the High School	Column I How much of the time do you believe each of the following characteristics of your high school is adequate?	Column II How do you feel about the adequacy of each of the characteristics of your high school?
	1. Seldom 2. Occasionally 3. About half the time 4. Good deal of the time 5. Most of the time	1. Very much dislike 2. Dislike 3. Neither like nor dislike 4. Like 5. Very much like
EXAMPLE: Academic Freedom	4	4
1. Homework	____	____
2. Library services	____	____
3. Discipline	____	____
4. Cooperation among teachers	____	____
5. Quality of instruction	____	____
6. Teacher-Student relations	____	____
7. Administrator-Teacher relations	____	____
8. Counseling and guidance service	____	____
9. Quality of student body	____	____
10. Quality of student leadership	____	____
11. Quality of student organization	____	____
12. Cooperation of parents	____	____
13. Quality of building and facilities	____	____
14. Academic standing of high school	____	____
15. Relationships with other high schools	____	____
16. Relationship with the local community		

This completes your part in the U. S. Office Project 918. The information will be coded on IBM cards and tabulated along with those of nearly 50,000 other students and teachers in the United States. Thank you again for your splendid cooperation.

Michigan State University
Research Staff

U. S. Office Project 918

College of Education

Michigan State University

...About Project 918

Your school has been chosen as one of 30 representative new high schools in the United States. Each of these schools will be studied by a research team from Michigan State University. Funds for the project are provided by the Congress of the United States through the U. S. Office of Education.

The purpose of Project 918 is to see if there are any real differences in the way teachers and students work and study together in different kinds of high school buildings.

If such differences can be found, it will point the way to the design of better high school buildings, and consequently better high school teaching and learning.

In the next two-hour period, would you please help in this important study by carefully and honestly completing each of the following questionnaires and inventories. Each questionnaire is self-explanatory. You should proceed from one to the other without waiting for additional directions. All information will be kept in strictest confidence. Your responses will be seen only by a research team at Michigan State University.

Thank you for your cooperation.

K. T. Hereford
Project Coordinator
Michigan State University

A.9.2.

GENERAL INFORMATION

1. Name (Please Print) ____
Last First

2. Name of school ____

3. a. Title of your position ______________________________________

b. Number of years in this position ______________________________

4. How many years of professional experience have you had? (check one)

less than 1 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5-9 ___ 10-15 ___ 16-20 ___ 21 or more__

5. What is your age? (check one) 20-24 ___ 25-29 ___ 30-34 ___ 35-39 ___ 40-44 ___ 45-49 ___ 50-59 ___ 60 or more ____

6. a. What is your sex? Male ___ Female ___ b. Are you married? Yes ___ No __

7. What is the highest academic degree that you hold?

Bachelors _____ Masters _____ Doctorate _____ Others (specify) ______________

A.9.3.

SCHOOL BUILDING AESTHETIC SCALE

How would you describe the aesthetics of your high school building? Check (x) the one word in each of the following 19 pairs of adjectives which you believe best describes your building? Please do not leave out any of the 19 choices.

1. ____ uninviting..................warm ____
2. ____ adultlike...............youthful ____
3. ____ comfortable........uncomfortable ____
4. ____ interesting........uninteresting ____
5. ____ unfriendly..............friendly ____
6. ____ factorylike...........residential ____
7. ____ weak.......................strong ____
8. ____ good..........................bad ____
9. ____ dim........................bright ____
10. ____ colorful....................drab ____
11. ____ clean......................dirty ____
12. ____ different.......indistinguishable ____
13. ____ artistic..................clumsy ____
14. ____ active...................passive ____
15. ____ soft.........................hard ____
16. ____ tiring...................restful ____
17. ____ inconvenient...........convenient ____
18. ____ institutional.........residential ____
19. ____ considerate...........indifferent ____

A.9.4.

PERSONAL CHARACTERISTICS CHECK-LIST

Teachers and students have many different personal traits. It would help us develop a better understanding of your school, if you would describe yourself as you believe you really are. Please remember that all of your responses are kept in strictest confidence. On the next two pages are 49 words which are commonly used to describe people. Try to describe yourself as accurately as possible by completing the two columns of words.

In Column I, please write by each word how much of the time you believe that you are this kind of person. Choose the one response (1 through 5) which best describes your belief about yourself. When you have completed all 49 words in Column I, then go to Column II.

In Column II, indicate for each of the 49 words how you feel about yourself in terms of each trait. Choose the one response (1 through 5) which best describes your feeling.

In the example, the person responding has said in effect:

In Column I: I am an academic kind of person a good deal of the time (4); and in

Column II: I like myself in this respect.

Please proceed to complete Columns I and II for each trait word

TRAITS:	Column I	Column II
	How much of the time am I this kind of person?	How do I feel about being this kind of person?
RESPONSES:	1. Seldom 2. Occasionally 3. About half the time 4. Good deal of the time 5. Most of the time	1. Very much dislike 2. Dislike 3. Neither like nor dislike 4. Like 5. Very much like
EXAMPLE: academic	4	4
1. acceptable		
2. accurate		
3. alert		
4. ambitious		
5. annoying		
6. busy		
7. calm		
8. charming		
9. clever		
10. competent		
11. confident		
12. considerate		
13. cruel		
14. democratic		
15. dependable		
16. economical		
17. efficient		
18. fearful		
19. friendly		
20. fashionable		
21. helpful		
22. intellectual		
23. kind		
24. logical		
25. meddlesome		
26. merry		
27. mature		
28. nervous		
29. normal		
30. optimistic		
31. poised		
32. purposeful		
33. reasonable		

34. reckless	______	______
35. responsible	______	______
36. sarcastic	______	______
37. sincere	______	______
38. stable	______	______
39. studious	______	______
40. successful	______	______
41. stubborn	______	______
42. tactful	______	______
43. teachable	______	______
44. useful	______	______
45. worthy	______	______
46. broad-minded	______	______
47. businesslike	______	______
48. competitive	______	______
49. fault-finding	______	______

CHARACTERISTICS OF OTHERS CHECK-LIST

Since a high school is made of people who work and study together, our understanding of your school would be more complete if we could have your beliefs about the kinds of people in your school.

Please think about the persons whom you feel are your friends. Although your friends may be somewhat different in many ways, try to think of the "average person" among your friends; or think of "your friends in general". Then try to put yourself in the place of this "average friend" and fill out the same two column check-list that you completed for yourself.

TRAITS:	Column I	Column II
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	1. Seldom 2. Occasionally 3. About half the time 4. Good deal of the time 5. Most of the time	1. Very much dislike 2. Dislike 3. Neither like nor dislike 4. Like 5. Very much like
1. acceptable	_____	_____
2. accurate	_____	_____
3. alert	_____	_____
4. ambitious	_____	_____
5. annoying	_____	_____
6. busy	_____	_____
7. calm	_____	_____
8. charming	_____	_____
9. clever	_____	_____
10. competent	_____	_____
11. confident	_____	_____
12. considerate	_____	_____
13. cruel	_____	_____
14. democratic	_____	_____
15. dependable	_____	_____
16. economical	_____	_____
17. efficient	_____	_____
18. fearful	_____	_____
19. friendly	_____	_____
20. fashionable	_____	_____
21. helpful	_____	_____
22. intellectual	_____	_____
23. kind	_____	_____
24. logical	_____	_____
25. meddlesome	_____	_____

26. **merry** ______ ______
27. **mature** ______ ______
28. **nervous** ______ ______
29. **normal** ______ ______
30. **optimistic** ______ ______
31. **poised** ______ ______
32. **purposeful** ______ ______
33. **reasonable** ______ ______
34. **reckless** ______ ______
35. **responsible** ______ ______
36. **sarcastic** ______ ______
37. **sincere** ______ ______
38. **stable** ______ ______
39. **studious** ______ ______
40. **successful** ______ ______
41. **stubborn** ______ ______
42. **tactful** ______ ______
43. **teachable** ______ ______
44. **useful** ______ ______
45. **worthy** ______ ______
46. **broad-minded** ______ ______
47. **businesslike** ______ ______
48. **competitive** ______ ______
49. **fault-finding** ______ ______

HIGH SCHOOL CHARACTERISTICS CHECK-LIST

First, in Column I, describe how your high school appears to be at this time in terms of each of the 16 characteristics. To do so, decide how much of the time each of the characteristics appears to be adequate in your high school. At the top of Column I is a list of five possible responses. Choose the response which best describes how much of the time each characteristic is adequate in your high school.

Second, in Column II, describe how you feel about your high school as it appears to be at this time. To do so, decide how you feel about each of the characteristics which you have described in Column I. At the top of Column II is a list of five possible responses. Choose the one response which best describes how you feel about each characteristic.

Characteristic of The High School	Column I How much of the time do you believe each of the following characteristics of your high school is adequate?	Column II How do you feel about the adequacy of each of the characteristics of your high school?
	1. Seldom	1. Very much dislike
	2. Occasionally	2. Dislike
	3. About half the time	3. Neither like nor dislike
	4. Good deal of the time	4. Like
	5. Most of the time	5. Very much like
EXAMPLE: Academic Freedom	4	4
1. Homeword	____	____
2. Library service	____	____
3. Discipline	____	____
4. Cooperation among teachers	____	____
5. Quality of instruction	____	____
6. Teacher-Student relations	____	____
7. Administrator-Teacher relations	____	____
8. Counseling and guidance services	____	____
9. Quality of student body	____	____
10. Quality of student leadership	____	____
11. Quality of student organization	____	____
12. Cooperation of parents	____	____
13. Quality of building and facilities	____	____
14. Academic standing of high school	____	____
15. Relationships with other high schools	____	____
16. Relationship with the local community	____	____

A.9.10.

KNOWING STAFF PERSONNEL

One of the most difficult tasks for the administrator usually is learning to know his staff members. As a simple challenge to your knowledge of the staff, would you please choose the three (3) teachers that you feel you know best, from all of those on your staff. Please limit your to those who teach in grades 9, 10, 11 or 12.

Please try to supply the requested information about each of the three (3) teachers from memory. Please do not consult your records or other sources for help. The questions are so designed that it will be impossible for most administrators to supply all requested information accurately. Please, therefore, do not feel embarrassed if you cannot answer all questions to your satisfaction from memory.

Teacher Number One

Name of Teacher: ____
Last First

1. How many years of teaching experience has he or she had? (check one)
less than 1 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5-9 ___ 10-15 ___ 16-20 ___ 21 or more___

2. What is the age of this teacher? (check one) 20-24 ___ 25-29 ____ 30-34 ____
35-39 ____ 40-44 ___ 45-49 ___ 50-59 ___ 60 or more ____

3. a. Sex of teacher. Male ___ Female ___ b. Is he or she married? Yes __ No__

4. If he or she is married, what is spouse's occupation? ____________________

5. How many years has he or she been employed on this high school staff?
less than 1 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6-9 ___ 10-15 ___ 16-20 ___
21 or more ____

6. What is the highest academic degree he or she holds?
Bachelors ____ Masters ___ Doctorate ____ Others (specify) ________________

7. List subjects and grade levels that he or she is presently teaching.

Subject	Grade Level
______________________________	_________
______________________________	_________
______________________________	_________

8. What is his or her father's occupation? (If deceased, what was it?)

9. Which of the following teaching tasks do you believe he or she finds most difficult? (check one)

____1. preparing lesson plans
____2. evaluating student performance
____3. introducing new teaching techniques
___4. working on faculty committees
___5. being accepted by student body
___6. relating himself to the staff

10. Which of the following teaching tasks does he or she find to be easiest? (check one)

___1. preparing lesson plans
___2. evaluating student performances
___3. introducing new teaching techniques
___4. working on faculty committees
___5. being accepted by student body
___6. relating yourself to the staff

11. Where is his or her birthplace? ______________________________
State

Teacher Number Two

Name of Teacher: ______________________________
Last First

1. How many years of teaching experience has he or she had? (check one) less than 1 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5-9 ___ 10-15 ___ 16-20 ___ 21 or more ___

2. What is the age of this teacher? (check one) 20-24 ___ 25-29 ___ 30-34 ___ 35-39 ___ 40-44 ___ 45-49 ___ 50-59 ___ 60 or more ___

3. a. Sex of teacher. Male ___ Female ___ b. Is he or she married? Yes___ No___

4. If he or she is married, what is spouses' occupation? ______________________________

5. How many years has he or she been employed on this high school staff? less than 1 __ 1 __ 2 __ 3 __ 4 __ 5 __ 6-9 __ 10-15 __ 16-20 __ 21 or more __

6. What is the highest academic degree he or she holds? Bachelors ___ Masters ___ Doctorate ___ Others (specify) ______________________________

7. List subjects and grade levels that he or she is presently teaching.

Subject	Grade Level
______________________________	___________
______________________________	___________
______________________________	___________

8. What is his or her father's occupation? (If deceased, what was it?) ___________

9. Which of the following teaching tasks do you believe he or she finds most difficult? (check one)

___1. preparing lesson plans
___2. evaluating student performance
___3. introducing new teaching techniques
___4. working on faculty committees
___5. being accepted by student body
___6. relating himself to the staff

10. Which of the following teaching tasks does he or she find to be easiest? (check one)

__1. preparing lesson plans
__2. evaluating student performances
__3. introducing new teaching techniques
__4. working on faculty committees
__5. being accepted by student body
__6. relating yourself to the staff

11. What is his or her birthplace? ____________________
State

Teacher Number Three

Name of Teacher: ____________________
Last First

1. How many years of teaching experience has he or she had? (check one)
less than 1 __ 1 __ 2 __ 3 __ 4 __ 5-9 __ 10-15 __ 16-20 __ 21 or more __

2. What is the age of this teacher; (check one) 20-24 ____ 25-29 ____ 30-34 ___
35-39 ___ 40-44 ___ 45-49 ___ 50-59 ____ 60 or more ____

3. a. Sex of teacher Male __ Female __ b. Is he or she married? Yes __ No __

4. If he or she is married, what is spouse's occupation? ____________________

5. How many years has he or she been employed on this high school staff?
less than 1 __ 1 __ 2 __ 3 __ 4 __ 5 __ 6-9 __ 10-15 __ 16-20 __ 21 or more __

6. What is the highest academic degree he or she holds?
Bachelors ____ Masters ____ Doctorate ___ Others (specify) ____________________

7. List subjects and grade levels that he or she is presently teaching.

Subject	Grade Level
____________________	__________
____________________	__________
____________________	__________

8. What is his or her father's occupation? (If deceased, what was it?)
____

9. Which of the following teaching tasks do you believe he or she finds most difficult? (check one)

__1. preparing lesson plans
__2. evaluating student performance
__3. introducing new teaching techniques
__4. working on faculty committees
__5. being accepted by student body
__6. relating yourself to the staff

10. Which of the following teaching tasks does he or she find to be easiest? (check one)

__1. preparing lesson plans
__2. evaluating student performance
__3. introducing new teaching techniques
__4. working on faculty committees
__5. being accepted by student body
__6. relating himself to the staff

11. Where is his or her birthplace? ______________________________
State

U. S. OFFICE PROJECT 918

COLLEGE OF EDUCATION

MICHIGAN STATE UNIVERSITY

A.10.2.

Name of High School

Address (City and State)

Name of M.S.U. Visitor

The purpose of the research study is to determine the effect high school buildings have upon the way teachers and students work and study. Comparisons will be made among multi-story schools, campus-type buildings, and those planned as schools-within-schools.

Numbers on the school folders identify the schools as follows: 3=compact-subject, 1=compact-s.w.s, 3=campus-grade, 9=campus-subject.

An additional purpose of our school visitation is to gather information for future publications concerning emerging practices in secondary schools, etc. It is suggested that the interview schedules be completed after observation and by consulting with the school principal and other members of his administrative staff.

A brief high school staff meeting would be desirable before the inventories are administered to the teachers and students. However, we must rely upon your judgment as to how to best proceed in terms of the circumstances of the school you are visiting. At this meeting, the purpose of the study can be made, and the student instrumentation can be briefly explained. (See Information Concerning Instruments.)

SCHEDULE

First Day-

1. Brief interview with principal, to review procedures and testing schedule.
2. Brief staff meeting (if possible to introduce M.S.U. Staff member and review purpose of study).
3. Distribution of materials for testing.
4. Interviews (approximately 1 hour each):
    1. Full-time counselor(s)
    2. Full-time librarian(s)
    3. "House" or Little School Administrator in School-Within-A-School.
    4. Principal
    5. Assistant Principals

Second Day-

1. Two consecutive periods in classroom for testing with students and teachers in grades 9, 10, 11, 12 only.
2. Survey of building.
3. Collect materials from each classroom.
4. Consolidate impressions of visitation and complete reports.

Special Note for Schools in California:

This entire schedule will be incorporated into the one day visitation.

A.10.4

CHECK-LIST OF MATERIALS

The following lists of materials should either be in the school folders; and if they are not there can be obtained from the school. First, check off materials presented found in school folder. Second, obtain materials not found in folder from the school, if available, and check off.

_____ 1. Statements of Philosophy or Objectives

_____ 2. Description of Student Activity

_____ 3. List of Subject Offerings

_____ 4. Organizational Chart

_____ 5. Class Enrollments (Requested by letter)

_____ 6. Student List (Requested by letter)

_____ 7. Photos or Descriptions of the Building

_____ 8. Floor Plan with Room Numbers Indicated

_____ 9. Experiments Conducted

_____ 10. Surveys Conducted

INSTRUMENTS

Student Booklet-

1. **General Information**
2. **Classroom Aesthetic Scale**
3. **Building Aesthetic Scale**
4. **Assistance Sources Inventory**
5. **Occupational Aspiration Scale**
6. **Friendship Inventory**
7. **Personal Characteristics Check-List**
8. **High School Characteristics Check-List**

Teacher Booklet-

1. **General Information**
2. **Classroom Aesthetic Scale**
3. **Building Aesthetic Scale**
4. **Assistance Sources Inventory**
5. **Activity Inventory**
6. **Student Information Inventory**
7. **Personal Characteristics Check-List**
8. **High School Characteristics Check-List**

Administrator Booklet-

1. **General Information**
2. **Building Aesthetic Scale**
3. **Personal Characteristics Check-List**
4. **High School Characteristics Check-List**
5. **Teacher Information Inventory**

INTERVIEWS

Interviews will be concerned with:

1. **School Plant Planning**
2. **Program - Curriculum**
3. **Pupil Personnel Services**
4. **Organization**
5. **Instruction and Instructional Materials**

A.10.6

INFORMATION CONCERNING INSTRUMENTS

Student's Booklet-

1. General Information - calls for identification, family information, personal activity habits, etc.

2. Classroom Aesthetic Scale - seeks responses to immediate physical classroom environment--not psychological environment.

3. Building Aesthetic-Scale - seeks responses to school plant in general.

4. Assistance Sources Inventory - obtains the student's customary sources of assistance.

5. Occupational Aspiration Scale - student is asked to select one of eight occupations in terms of each of eight (8) questions. They must respond to each. Should the student consider the eight occupational choices to be "not applicable to him," he should check the occupation which he considers the least irrelevant. Students, particularly girls, respond more easily when told to disregard the sex normally associated with the occupations.

6. Friendship Inventory - request students to identify friends and locale of friends.

7. Personal Characteristics Checklist - student is asked to respond to a series of descriptive trait words in four different ways:

    (1) Part A - Column I - How much of the time he feels he is this kind of person, e.g. seldom, most of the time, etc.

    (2) Part A - Column II - How he feels about being this way, e.g. likes, dislikes, etc.

    (3) Part B - Column I - How much of the time he believes average person in his peer group to be this way, e.g. seldom, most of the time, etc.

    (4) Part B - Column II - How he believes the average person in his peer group feel about being this way, e.g. likes, dislikes, etc.

8. High School Characteristics Scale - student is asked to respond to a series of statements concerning aspects of the high school in two ways:

    (1) Column I - How much of the time he believes the high school to be adequate in this respect, e.g. seldom, most of the time, etc.

    (2) Column II - How he feels about the high school being this way, e.g. likes, dislikes, etc.

INTERVIEW SCHEDULE

FACILITIES AND DESIGN

A.10.8

Directions: If the faculity is not found in the building, merely mark not present in the blank space. If it is included, please describe briefly in a few succinct sentences.

I. The Educational Facilities

1. Space for Large Group Instruction
2. Space for Small Group Instruction
3. Space for Independent Study
4. "School Within A School" Facilities
5. Divisable Space
6. Spaces Convertible to Multiple Use
7. Instructional Materials Center
8. Teaching Machines (T.V. etc.)

9. **Unique Outdoor Instructional Areas** ________________________________

____

____

10. **Social Areas** ____

____

____

11. **Other Unique Areas** ____________________________________

____

____

II. The Planning Process

In the opinion of the administrative staff who was involved in the educational planning of the school facilities?

	NI	SI	FI	GI
1. Architect				
2. Board of Education				
3. Building Administrative Staff				
4. Building Service Staff				
5. Educational Consultant-Generalist				
6. Educational Consultant-Subject Specialist				
7. Lay Citizens				
8. State Department of Education Personnel				
9. Students				
10. Superintendent of Schools				
11. Teachers				
12. Other (Specify) ________________				

L^1 Not Involved

L^2 Slightly Involved

L^3 Frequently Involved

L^4 Greatly Involved

Comments ____

____

____

____

INTERVIEW SCHEDULE

PROGRAM OF STUDIES

A.10.12

I. Organization

1. To what extent is the program based upon an analysis of the educational needs of youth? ____________________

2. Does the program provide for both common and individual needs of students? ____________________

3. How does the program provide for the slow learner? ____________________

II. Curriculum Development

A. To what extent are (is):

1. Teaching staff members given opportunity to contribute to curriculum development ____________________

2. Teachers relieved of other assignments in order to assist in curriculum development ____________________

3. Funds provided for curriculum projects ____________________

4. Parents and other adults in the community involved in curriculum development ____________________

5. Students involved in curriculum development ____________________

6. Professional consultants used in developing procedures for curriculum development ____________________

7. The evaluation of student achievement based on individual aptitude and ability ____________________

B. To what extent are the following procedures used in curriculum development?

1. Follow up studies of former students ____________________

2. Materials from other high schools ____________________

3. Research reports ____________________

5. Publications of state department of education, regional and national organizations ____________________________________

III. General Characteristics of Program

To what extent does program provide for:

1. Emphasis by all teachers upon correct usage of grammar, spelling and vocabulary, handwriting, and correct speech habits ____________________

2. Development of study skills ____________________

3. Opportunities to become intelligent consumers ____________________

4. Opportunities emphasizing rights and responsibilities of citizens in the American democracy ____________________

5. Opportunities to develop leisure-time skills ____________________

IV. Instruction and Instructional Materials

To what extent are (is):

1. Instructional activities designed for the extensive use of library facilities ____________________

2. Community resources used to enrich the instructional program ____________________

3. Careful planning and preparation for instruction ____________________

4. Teachers working cooperatively in coordinating instruction ____________________

5. Standardized tests used to evaluate class and individual materials ____________________

V. Emerging Practices

Directions: If the program, practice, or facility is not found in the building merely mark not present in the blank space. If it is included, please describe briefly the program, practice, or facility in a few succinct sentences.

1. Team Teaching ____________________
2. Large group instruction ____________________
3. Small group activities ____________________
4. Independent study ____________________
5. Block Time or core program ____________________
6. Special program for the gifted ____________________
7. Other ____________________

VI. Special

1. The major problems involved in program scheduling ____________________
2. What are the procedures and policies concerning dicipline (Written school statements may be available for this.) ____________________
3. What are the responsibilities of:
   a. Department Heads ____________________
   b. "House" Masters ____________________
4. What teacher communities are used and what are their functions and responsibilities? ____________________
5. Who provides the subject matter supervision in the school? ____________________
6. Who is (was) involved in developing the program of studies, e.g. science program? ____________________

FOR-SCHOOLS-WITHIN-A-SCHOOL

1. How uniform are the programs within the "little school"?

2. What are the defined areas of authority and responsibilities, e.g. autonomy, of the "little schools"?

3. Is there total agreement or are there differences among the "little schools" concerning:
   1. Grading:
   2. Homework:
   3. Discipline:

A.10.16.A

INTERVIEW SCHEDULE

PUPIL PERSONNEL SERVICES

A.10.17

I. EMERGING PRACTICES

Directions: Please describe any new or unique practice found in the school you are visiting. It is suggested that the form be completed after observation and consulting with the school director of guidance and/or other members of his staff.

1. Multiple Counseling ______________________________

____

____

2. Parent Involvement in Test Interpretation ______________________________

____

____

3. Parent Involvement in Students Educational Program Planning ____________

____

____

4. Providing Educational Vocational Information to Students ____________

____

____

5. Electronic Scoring, Analysis and Tabulating ______________________________

____

____

6. Community Involvement in School Program Planning ____________________

____

____

7. Other ______________________________________

____

____

A.10.18

II. GUIDANCE SERVICES

1. Number of persons designated as counselors (for part-time people use number of full-time equivalents)

2. What is the average number of interviews per pupil during the school year? ____________________

3. Time allotted for coordinating and directing guidance services in this school. (1) full time ________ (2) half time __________ (3) less than half time ________________

4. Preparation of guidance personnel - Do they possess a (1) degree in guidance ______________ (2) special certificate ______________ (3) other evidence __________________

5. To what extent do teachers indicate interest in and understanding of the functions of the guidance services? (1) very interested __________ (2) average interest ______________ (3) not concerned ____________

6. To what extent are referrals made to community agencies (1) often ________ (2) sometimes ______________ (3) never _________________

7. Examine and evaluate a cumulative record folder. Look for such items as records from previous schools, test data, personal data blanks, interview records, teacher ratings, and observations, parent interview records, autobiographies, sociometric devices, case studies, and socioeconomic ratings, data concerning interests, club memberships etc., home and family background data, physical and health data, scholastic data. Records are: (1) very complete ____________ (2) average ________________ (3) meager ______________

8. Where are records kept? (1) In the counselor's office ________ (2) In the principal's office ____________ (3) Other (Please Name) ____________

9. How often are records used by others than those in the guidance department? (1) frequently ______________ (2) occasionally ________ (3) Seldom ______

10. Files or libraries of occupational, educational and social information are maintained in (1) each counselor's office ________ (2) central guidance area ____________ (3) in the library __________ (4) other location (Please name) ______________________________

11. Files or special libraries contain the following: (Please check)

Current educational opportunities and requirements beyond high school ______

Information concerning jobs, requirements, rewards and conditions of work ______

Information concerning the present and future local job market ______

Information concerning recreational opportunities ______

Information concerning teenage social problems ______

Current catalogs of colleges, trade schools, nurses training, etc. ______

Current information on scholarships, loan, and financial assistance ______

12. Resource persons are brought in to confer with student groups on careers, colleges, trade schools, etc. (1) frequently ______ (2) sometimes ______ (3) never ______

13. Most teachers perceive counselors as professional workers which they may cooperate with in helping to understand and handle many types of student problems. (1) Yes ______ (2) No ______ (3) Comments ______

14. Counselors are perceived as members of the administrative hierarchy. (1) Yes ______ (2) No ______ (3) Comments ______

15. Placement services are available to aid students to enter further training or to enter the job market. (1) Yes ______ (2) No ______ Comments ______

______

16. Placement is handled by the (1) director of placement ______ (2) counselors ______ (3) departments within the school ______
Comments ______

17. Someone in the high school is specifically responsible for carrying out evaluation and research services. (1) Yes ______ (2) No ______
Comments ______

18. The time specified for this person to spend on research and evaluation is (1) full time ______ (2) half time ______ (3) less than half time ______

19. What are the best elements of the guidance services?

______

______

20. In what areas is improvement most needed?

______

______

21. In what areas is improvement planned or underway?

______

______

22. To what extent is the administration interested in supporting the guidance program? (1) very interested ______ (2) somewhat interested ______ (3) not interested ______ Comments ______

A.10.20

U. S. OFFICE PROJECT #918

COLLEGE OF EDUCATION

MICHIGAN STATE UNIVERSITY

Completion of Administrator Booklet by:

1. **Principal**
2. **Vice Principal**
3. **Full-time Counselor**
4. **Registrar**
5. **Business Manager (if there is one in the high school)**
6. **Librarian**
7. **Dean of Boys**
8. **Dean of Girls**
9. **House Administrator**

RESPONSE DATA BY SCHOOL WITHIN TYPE

School No.	Enroll.	Response	%	Completed	%	% Error Resp.
Type I						
22	2369	2186	92.3	2093	88.3	95.7
23	2086	1867	89.5	1710	82.0	91.6
33	790	783	99.1	734	92.9	93.7
Total	5245	4836	92.2	4537	86.5	93.8
Type II						
29	388	350	90.2	317	81.7	90.6
34	426	415	97.4	375	88.0	90.6
19	593	458	77.2	424	71.5	92.5
15	594	520	87.5	428	72.0	82.3
05	771	662	85.9	589	76.4	88.0
18	850	662	77.9	585	68.8	88.4
11	854	749	87.7	503	58.9	67.15
08	1007	943	93.6	887	88.1	94.1
32	1567	1310	83.6	1208	77.1	92.2
16	1605	1446	90.1	1293	80.6	89.4
17	1780	1603	90.0	1458	81.9	90.9
01	1997	1947	97.5	1652	82.7	84.8
Total	12,432	11,065	89.0	9719	78.2	87.8
Type III						
13	475	450	94.7	419	88.2	93.1
14	503	479	95.2	421	83.7	87.9
31	980	931	95.0	859	87.6	92.3
21	1359	1182	87.0	1135	83.5	96.0
25	1450	1344	92.7	1242	85.6	92.4
20	1963	1815	92.5	1615	82.3	89.0
09	2256	2024	88.8	1817	80.5	89.8
27	2280	2083	91.3	1725	75.6	82.8
Total	11,266	10,308	91.5	9233	81.9	89.6
Type IV						
23	830	760	91.6	661	79.6	87.0
10	1048	946	90.3	761	72.6	80.4
02	1212	1120	92.4	993	81.9	88.7
12	1535	1337	87.1	1191	77.6	89.1
26	1575	1498	95.1	1204	76.4	80.4
28	1643	1577	96.0	1485	90.4	94.2
04	1845	1592	86.3	1324	71.8	83.2
30	1875	1737	92.6	1552	82.3	89.3
Total	11,563	10,567	91.4	9,171	79.3	86.8

Type V

07	1500	1312	87.5	1234	82.3	94.0
06	1578	1449	91.8	1278	81.0	88.2
03	1876	1659	88.4	1468	78.2	88.5
Total	4954	4420	89.2	3980	80.3	90.0

DATE OF OCCUPATION OF 34 Schools

Year	Compact-Subject	Compact-SWS	Campus-Subject	Campus-SWS	Campus-Grade
1950				1	
1951					
1952					
1953					
1954			1		
1955	2		2		
1956	2		2	1	1
1957	2	1	4	1	
1958	2	1		2	2
1959		1	3	3	
Median	1957	1958	1954	1957	1958

It is noted that although the distributions are in some cases dissimilar the median year of occupation is approximately the same for all groups. The skewed distribution in some of the groups does represent a bias which was considered in the data analysis procedures.

Chapter 3

CHARACTERISTICS OF SCHOOLS

The purpose of this section is to present in summary form the chief characteristics of the 34 schools employed in the studies of Project 918, and to present the results of the tests of the classification hypotheses as applied to the 34 schools. The 34 schools are identified by name and code number in Appendix B.1.

1. Characteristics of Schools

It will be recalled from Section B that the limited number of Type I and Type III schools obtained through the nation-wide search for new school buildings introduced two major sources of bias to the study:

(1) the schools classified as Type I and Type III themselves were not fully comparable;

(2) the combined class of Type I and Type III schools was not fully representative of the total population of new schools constructed during the period of 1954 and 1959.

The latter discrepancy was noted and allowances made for non-representation of the sample of schools in the analyses. In tables C.1 and C.5 which follow, data describing the 34 schools are presented for the 17 different factors used to "match" the 34 schools within-building type classifications. Items A-H are keyed to Table C.1, Items I-Q to Table C.5.

A. Grades in High School

It should be noted that only students in grades nine through twelve were used in the study. Consequently, the period of adjustment for the students in the different schools vary in accordance with the number of grades in the school; for example, a tenth grade student in a 7-12 school has had a longer period (he is beginning his fourth year in the school at the time of the study) than a tenth grade student in a 10-12 grade school (who is in his first year in the school). Distribution of the schools by "Grades in High School" appears in Appendix B.2. Grades taught in the school district appear in Appendix Tabe B.3.

B. Teacher-Pupil Ratio

The teacher-pupil ratio is not significantly different for any of the building classifications. The average number of teachers is generally comparable in all cases except the Type I group in which it is larger.

C. Average School Enrollment

The schools varied by total enrollment from 452 (Type II, grades 10-12) to 2,387 (Type I, grades 9-12). The mean enrollment for all schools was about 1,400 with the Type IV schools generally enrolling fewer students and the Type I schools enrolling well in excess of the mean number. Types II, III and IV schools were fully comparable.

TABLE C.1

SUMMARY OF

CHARACTERISTICS OF 34 SCHOOLS

	A	B	C	D	E	F	G
	Grades in High School	Teacher-Pupil Ratio	Average School Enrollment	Average Number of Teachers	Average Enrollment Per Grade	Total Enrollment of Schools	Total Teachers for school
Compact S.W.S.	7-12=1 9-12=2 10-12=0	20.13	1,869.00	92.67	429.22	5,607	278
Company Subject	7-12=0 9-12=3 10-12=5	23.48	1,343.75	56.63	395.15	10,750	453
Campus Subject	7-12=0 9-12=5 10-12=3	24.09	1,415.25	60.06	401.84	11,322	480
Campus Subject	7-12=3 9-12=5 10-12=4	21.44	1,038.5	50.33	285.45	12,453	573
Campus Grade	7-12=0 9-12=2 10-12=1	22.00	1,409.3	67.00	391.39	4,228	201
Total	-	-	-	-	-	44,360	1,985
Average	-	22.02	1,415.10	65.34	380.61	-	-

Source: Tables 4-8 Appendix B

D. Average Number of Teachers

The number of teachers varied in direct proportion to the variance reported in the total school enrollments.

E. Average Enrollment Per Grade

Because the school varied by total enrollment and in the number of grades provided, the figure for "average enrollment per grade" was used as the basic measure of size of school. The Type IV schools were smaller by this classification and the Type I schools larger. When the schools were so classified, they were distributed by size in accordance with data presented in Tabe C.2.

TABLE C.2

Size of 34 Schools by Type

Size	Type					Total
	I	II	III	IV	V	
Large	2	4	2	3	2	13
Medium	0	2	5	1	1	9
Small	1	2	1	8	0	12
Total	3	8	8	12	3	34

Part of the bias due to size was nullified during analysis by (1) examining hypothesized relationships by size as well as by building type and (2) by examining size of school in realtion to the individual building factors of design and organization. When the latter was accomplished, no significant relationships were found between size of school and (a) building design or (b) pattern of building utilization. The distribution of schools by size and design is presented in Table 3. The Chi square value of differences by design type was 2.790 and, with two degrees of freedom, not significant at the .05 level.

TABLE C.3

Size of 31 Schools by Design Type

Size	Design Type		Total
	Compact (I + II)	Campus (II + IV)	
Large	6	5	11
Medium	2	6	8
Small	3	9	12
Total	11	20	31

$X^2 = 2.790$ d.f. = 2 P > .20

The Chi square value reported in Table C.4 was 5.560 and, with two degrees of freedom, not significant at the .05 level; hence, the factor of size was not significantly related to type of utilization.

TABLE C.4

Size of 31 Schools by Utilization Type

Size	**Utilization Type** **School-Within-School (I + III)**	**Subject-Area (II + IV)**	**Total**
Large	**4**	**7**	**11**
Medium	**5**	**3**	**8**
Small	**2**	**10**	**12**
Total	**11**	**20**	**31**

$X^2 = 5.560$ d.f. = 2 P > .05

While conclusions based upon analysis by building type ultimately had to account for variance attributed to size of school, some conclusions based upon analysis by design type or by pattern of utilization did not require specific controls for size of school.

F. Total Enrollment of Schools

The total enrollments of type II, III and IV schools are roughly comparable as are those of type I and V. The number of students within each types was sufficiently large to permit full analysis regardless of differences in total enrollment.

G. Total Number of Teachers

As in total enrollments of schools, the total number of teachers for each type was sufficiently large to warrant full analyses by teachers, hence differences between type I and V and Type II, III, IV schools were not deemed to be relevant.

H. Percent of Students Transported

Students using regular public buses under special contractual arrangement with the school district were incorporated. It is apparent that the Type II, IV and V schools transport roughly equal proportions of their student bodies. Type I schools transported a larger percent of students and the Type III schools transported a smaller percent. The latter difference was unavoidable inasmuch as the nature of the communities in which these types of schools were constructed were themselves dissimilar. Distribution of school by type of community is presented in Table C.6.

TABLE C.5

SUMMARY OF CHARACTERISTICS OF 34 SCHOOLS

	H	I	J	K	L	M	N	O	P	Q
	Percent Transported	Per Pupil Expenditure	Socio-Economic Scale	Percent Grads. Attend College	Occupational Level	No. of High Schools in District	Racial Intermix	Percent Male Teachers	Full-Time Non-Teaching Staff	Part-Time Non-Teaching Staff
Compact S.W.S.	57.67	503.33	15.03	48	3.13	1.66	1.70	67.3	9.66	2.66
Compact Subject	44.25	326.50	14.55	51.13	5.79	2.75	1.52	56.75	5.75	5.5
Campus S.W.S.	29.5	323.63	15.21	47.5	4.43	4.75	1.03	53.5	5.85	2.64
Campus Subject	49.25	436.20	14.57	49.73	6.69	1.9	1.56	59.75	7.00	1.83
Campus Grade	43.6	495.00	14.65	63.66	8.61	1.33	1.73	56.6	10.33	0.87

Source: Tables 9-13 Appendix B

TABLE C.6

Distribution of 34 Schools
by
Type of Community

Community	I	II	III	IV	V
Urban		1		3	1
Rural Urban	1		1		
Suburb Industrial	1			1	1
Rural Urban Industrial		3		1	
Small City Village		1			
"Bedroom" Suburb	1	3	6	5	1
Rural Village				1	
Rural Non-farm					
Rural			1	1	

Type III schools are more frequently located in suburban areas. In general, the schools in this study tend to be located in suburban areas and in other population growth centers.

I. Per Pupil Expenditure

This factor is based on the annual per pupil current expenditure (excluding capital outlay) for the 1958-1959 fiscal year. The Type II and III schools, while comparable, were low. Types I and V were comparable, both around $500 per pupil. Type IV schools were $436 per pupil. All types exceeded national average per pupil expenditures for that fiscal year.

J. Socio-economic Index

The factor is based upon estimates made by principals of the schools. Items of housing, income and educational level of the parents in the school service area were considered. The highest socio-economic rating possible on this instrument is 4.00. The lowest socio-economic rating possible is 21.00. Note: This procedure was explained in the discussion in Section B concerning the Student Personnel Index. See Appendix A.4. According to this scale the various building types are comparable by this factor. However, the variance among individual schools on the Duncan Index (derived from an index of father's occupations as reported by students) was such that the socio-economic factor required a direct control by a proportionate sampling procedure.

K. Percent of Graduates Attending College

Figures for the graduating classes of 1958-1959 were used. Four of the five building types were clearly comparable. Type V schools reported the highest percentage, nearly 64%, of its graduates attending college.

L. Occupational Level

The school principals estimated the occupational levels of the parents in the school service area. (See discussion concerning Student Personnel Index, p.2.3.) The highest possible rating is 1.00 and the lowest rating possible is 13.00. The differences among the schools by building type were significant and the results were substantiated by the data obtained directly from the students.

M. Number of High Schools in District

The number of different high schools in the 34 school districts under study presented a skewed distribution. It should be noted also that the median number of schools per district was reported to be two. Most school districts in this study were relatively large districts, located in and around large metropolitan centers.

The state and regional distribution of the thirty-four schools is presented in Table C.7.

Although the 34 schools are distributed representatively by regions of the country, the concentration of schools in certain metropolitian areas (e.g. in New York and California) unbalanced the distribution within regions. Nonetheless, 23 of the continental 48 States were represented in the sample as were the chief centers of population.

TABLE C.7

STATE AND REGIONAL DISTRIBUTION OF 34 SELECTED SECONDARY SCHOOLS

Region	State	No. of Schools	
North East	Connecticut	1	
	New Jersey	1	
	New York	4	
	Pennsylvania	1	
	Vermont	1	
		8	23.5%
South	Alabama	1	
	Maryland	1	
	North Carolina	2	
	Oklahoma	1	
	South Carolina	1	
	Texas	1	
	Virginia	1	
		8	23.5%

North Central	Illinois	1	
	Michigan	1	
	Missouri	2	
	Nebraska	1	
	North Dakota	1	
	Ohio	2	
	Wisconsin	1	
		9	26.5%
West	Arizona	1	
	California	4	
	Oregon	1	
	Washington	3	
		9	26.5%

N. Race Intermix

This factor was also based upon the administrative staffs' estimates of the racial and ethnic groups represented in the student bodies of the 34 high schools. The size of the minority groups was estimated as a percentage of the entire study body. A school with a large number of different groups of considerable size received a rating approaching 4.00. A school in which only one racial group was represented received a rating approaching 1.00.

The schools were generally comparable with respect to racial intermix. The one exception was building type III, which is comprised almost exclusively of one racial group.

O. Percent Male Teachers

The schools were roughly comparable on this factor. Type I schools reported about two-thirds of their teachers to be male. Most of these schools had large enrollments and were located in large industrial areas.

P. Full Time Non-Teaching Staff Personnel

The average number of staff personnel per school assigned to the high school on a full time basis with no teaching duties were recorded here. Included in this group were administrators, guidance counselors, nurses, librarians, etc. Such personnel were found in greater average numbers in the large, urban schools, therefore, the building types were not comparable on this factor.

Q. Part time Non-Teaching Staff Personnel

Medium and small schools, in greater average numbers per school than the large schools, employed non-teaching personnel on part time basis; consequently, the total number of such employees on an equated time basis were roughly comparable among the several types.

Considering the large number of interdependent variables involved, it can be said that the Compact: Subject (Type II), Campus: Subject (IV) and Campus: School-Within-School Type (III) buildings were generaly matched. These were the central groups in the study. The Compact: School-Within-School Type (Type I) and the Campus: Grade (Type V) schools were not as equally matched, but nonetheless permitted some important observations to be made. The small number of such schools in operation at the time of the study precluded the possibility of obtaining a closer matching.

2. Results of Tests of Classification Hypotheses

Before proceding to substantive analysis of factors of interaction and a attitude, it was necessary to test the adequacy of the buildings typology and the adequacy of the sample of the 34 schools within the five-fold building type classification employed. Operationally, seven classification hypotheses were tested and these results obtained:

A. Hypothesis One

Schools within each classification are matched for all relevant factors.

Inherent differences among building types were noted in Tables C.1 and C.5, particularly with respect to factors of size of school, regional location, and type of community. Since the schools appeared to be products of structurally different communities, the factors of community difference and school differences became operationally equivalent and the hypothesis was accepted with exceptions noted in the conclusions.

Hypothesis Two

Students within each building type are distributed proportionately by relevant factors of sex, age, grade level, years in school and socio-economic level.

The distributions student characteristics within building types varied. The socio-economic indices for example, varied from 25.5 to 62.4 around a mean of 46.3. See Table C.8. Hence it was necessary prior to analysis of student responses concerning interaction and attitude relationships to re-distribute the 34,254 student responses proportionately by the criterion factors within each of the five school models. This was accomplished by means of a stratfied random sample in which 7,968 or 23.2 per cent of the student responses were extracted, the resulting distribution being equivalent within each of the 34 schools and by building type. The procedure is described fully in Appendix B.14.

By stratifying student responses within each school by age, sex socio-economic level, grade level and years in school, it was possible to combine the 34 schools in diverse ways in order to test hypotheses related to size, design and utilization pattern as well as by building type. Following this manipulation, the hypothesis related to student characteristics was accepted.

TABLE C.8

SOCIO-ECONOMIC DATA FOR 34 SCHOOLS

School Code Number	Number of Students	SOI Mean
1	1648	39.1
2	993	38.3
3	1460	44.5
4	1324	36.9
5	588	35.1
6	1277	42.6
7	1230	57.5
8	887	51.4
9	1817	56.3
10	761	31.0
11	503	25.5
12	1189	46.2
13	417	36.6
14	421	31.0
15	428	39.4
16	1292	44.0
17	1447	48.5
18	584	48.0
19	423	36.9
20	1611	55.5
21	1132	57.6
22	2100	50.0
23	1706	52.3
24	661	62.4
25	1242	32.8
26	1203	40.2
27	1723	43.4
28	1356	48.6
29	317	56.0
30	1552	53.1
31	859	46.5
32	1207	45.5
33	734	50.2
34	375	32.3
Total	36467	46.3

Source: Duncan Socio-Economic Index applications to 36,467
Secondary school students in grades 9-12 of 34 High
Schools, November, 1960.

Hypothesis Three

Teachers within each type of school are distributed proportionately according to factors of (a) sex, (b) age (c) degree and (d) marital status.

The personal characteristics of the 1950 responding teachers were examined. Data were available on all relevant items for 1897 teachers. Detailed analyses on all items are summarized in Appendix B.15.

It was observed, however, that the distribution of teachers by age, sex, marital status and education level, varied by type of school. Despite the attempt to "match" the schools on these factors during the selection process, the resulting types were not comparable. The results of Chi square tests of difference by type of schools are summarized in Table C.9 below.

It was necessary to extract a sample from the 1897 teachers in order to make the distributions by age, sex, marital status and education level comparable among the 34 schools and among the five building types. The same procedure as used with student responses was employed with the 1897 teachers. A sample of 1189 responses stratified by the four criterion factors was extracted and used in subsequent analyses. When the sample was tested for variability and found to be adequate ($X^2 = 53.72$ d.f. 60 $p > .05$), the hypothesis concerning teacher characteristics was accepted. Details of the sampling procedure are reported in Appendix Tables B.16 and B. 17.

TABLE C.9

DIFFERENCES AMONG PERSONAL CHARACTERISTICS
OF TEACHERS BY TYPES OF SCHOOLS

Characteristic	X^2 Value	Dif.	Significance
A. Age (over and under age 40)	42.79	4	.01
B. Sex (male, female)	67.78	4	.01
C. Marital Status (married, unmarried)	18.50	4	.01
D. Years on Staff (over and under 2 years)	4.40	4	NS
E. Education Level (masters degree or more)	42.79	4	.01

Hypothesis Four

The overall pupil-teacher ratio varies by types of schools; specifically, the number of different students enrolled by teachers within the "school-within-school" pattern of school utilization (Type I and Type III) will be less than in conventional patterns of organization. (Types II and Types IV)

Initially, 1959-1960 enrollment data were used as a basis for selection of the schools. The teacher-pupil rations so calculated and reported in Table C.1, column B, were not materially different by type of school.

However, the hypothesis deals with a different concept of teacher-pupil ratio, namely: the number of different pupils enrolled under a single teacher in all of that teacher's classes during a term. To test this classification hypothesis, teachers were asked this question:

> "What is your best estimate of the total number of different students which you now have enrolled in all of your classes?"

For the calculation, no distiction was made between full time and part time teachers. Responses were grouped by types of schools and a F-test applied to determine any differences which were apparent. The results are presented in Table C.10.

The hypothesis: "School-Within-School" pattern of organization brings teachers into daily contact with fewer students was therefore rejected. Anticipating the conclusions which are set forth later in this report, the failure in actual practice to use the SWS pattern of utilization consistently with the intent (as expressed by writers and advocates of the SWS) may well account for much of the lack of differences in interaction and attitude related with this building factor.

TABLE C.10

NUMBER OF DIFFERENT STUDENTS ENROLLED IN ALL CLASSES CONDUCTED BY TEACHERS BY TYPES OF SCHOOLS

Type	No. of Teachers	No. Students Reported	Average PTR (mean)
I	131	14,698	112.2
II	259	32,664	126.1
III	256	32,960	128.7
IV	333	41,054	123.3
V	116	12,502	107.8
Total	1095	133,878	122.3

$F = 2.159$ $df_b = 4$ $df_w = 1090$ Sig. $> .05$

With the degrees of freedom observed, the null hypothesis: Ho: I=II=III=IV=V is accepted since the value of F is not significant at the .05 level. Hence, the classification hypothesis is rejected.

Hypothesis Five

The number of different subject in which students are enrolled differs among the types of schools: specifically, the number of different subjects reported by students is less in the "school-within-school" pattern (Type I and Type II) than in the "subject-area" pattern (Type II and Type IV).

To test this hypothesis, each student was asked this question:

How many different subjects would you normally have today? (Circle one)

1 2 3 4 5 6 7",

The mean number of subjects reported by students was essentially the same regardless of school type. When the means were tested by an F test, differences were not significant at the .05 level. Student responses were also examined for relationships with building type, utilization and size. The results are summarized in Tables 18-21 of Appendix B.

Hypothesis Six

The extent and pattern of student circulation differs by type of school; specifically, student circulation among building units is less in "school-within-school" patterns (Type I and Type III) than in "subject-area" patterns (Type II and Type IV).

It was anticipated that the pattern of circulation would differ between buildings of one story and of multi-story design. However, it was also anticipated that the patterns of circulation would differ significantly according to the pattern of building utilization; specifically, SWS organization would concentrate student traffic in "a floor" of a multi-story building or in a "little school" within the SWS organization. Operationally, this classification hypothesis was tested in this manner. Each student was asked these questions:

(A) "In how many different classrooms would you normally have classes today" Note: include study hall and gym. (Circle one)

1 2 3 4 5 6 7.

(B) "If your high school building is more than one story high, how many classes would you normally have today on the:

(a) first floor _____ (b) second floor ____ (c) third floor _____.

(C) If your school has two or more buildings, how many classes would you normally have today in each of the different buildings?

Name of Building	Number of Classes
1.____________________________	__________
2.____________________________	__________
3.____________________________	__________

In Table C.11, it is clear that students, regardless of building type, move to and from an equal average number of classrooms during a normal day.

Similar results were obtained when the average number of classrooms per student were examined by the separate building factors of design, organization and size. These are summarized in Tables 22-24 of Appendix B.

TABLE C.11

AVERAGE NUMBER OF DIFFERENT CLASSROOMS PER STUDENT IN NORMAL SCHOOL DAY BY TYPE OF BUILDING

Type	No. of Students	No. of Classrooms	Average No. Classrooms Per Student
I	1055	6511	6.17
II	1871	11098	5.93
III	2103	12163	5.78
IV	2188	12784	5.84
V	693	3911	5.64
Total	7910	46467	5.88

Since the average number of different classrooms per student remained essentially the same regardless of building factors, it was concluded that the extent of student movement did not vary by building type, hence, this part of the classification hypothesis was rejected.

To determine if the pattern -- if not the extent -- of student movement varied by building factors, the movement of students "within" and "among" building units was determined.

For multi-story ("Compact") schools, the movement of students between classes located on different floors of the building was examined. It was hypothesized that the SWS pattern of utilization required less floor to floor movement in "Compact" buildings than "subject area" utilization. A reported in Table C.12, students indicated a significant difference between the average number of classes taken per floor -- hence, a significant difference in inter-floor movement by type of building utilization. Therefore, this part of the classification hypothesis was accepted.

TABLE C.12

NUMBER OF CLASSES PER STUDENT BY FLOOR LEVEL AMONG TWO TYPES OF COMPACT BUILDINGS

(First Floor of Building)

No. Classes Per Student	Type I "Compact" "School-within-School"	Type II "Compact" "Subject Area"
1	65	281
2	208	443
3	259	471
4	274	333
5	127	119
6	53	45
7	7	15
Total	993	1707

X^2 131.77 d.f. = 6 $P < .001$

Similarly, it was hypothesized that the pattern of student movement between the two utilization types of "campus" buildings would differ and that the inter-unit movement in the SWS type would be less than in the Subject-Area type campus building.

When student responses from the Type III, Type IV and Type V schools were compared -- with respect to the factor, "number of classes per day per student"-- in the first of several building units in campus type schools -- differences were significant and in the direction anticipated by the hypothesis. In Table C.13, the X^2 value reported is significant beyond the .001 level. When the "actual" number reported was compared to the theoretically "expected" number -- the "expected" number being that which would result if differences by type of building utilization were not critical -- it was clear that:

(a) fewer students than expected of Type III and Type IV schools reported a single class in the first building unit, and more students than expected so reported in Type IV schools; conversely,

(b) more students than expected in Types III and Type V schools reported two or more classes per day in the first building unit.

Hence, a greater proportion of students than expected were spending more time (i.e. had more classes) in the first unit of multi-unit buildings of the SWS type, hence the hypothesis was accepted.

TABLE C.13

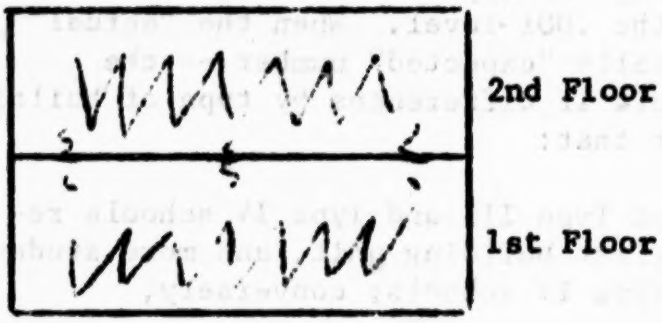
NUMBER OF STUDENTS TAKING ONE OR MORE CLASSES PER DAY
IN FIRST UNIT OF MULTI-UNIT
CAMPUS TYPE SCHOOLS

No. of Classes Per Student	Building Type		
	III	IV	V
One	999	1393	312
Two or More	790	414	206
Total	1789	1807	518

X^2 209.430 d.f. = 2 $P < .001$

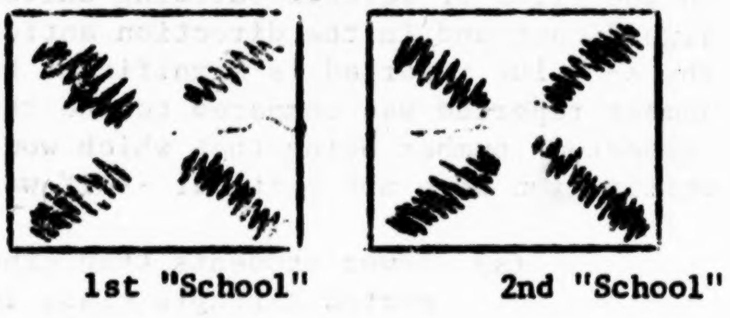
The results of classification hypotheses five and six appeared to be internally consistent with the results obtained from hypothesis four. It seems clear that both SWS and subject-area schools depend upon a similiar type of classroom organization, hence the number of classes and classrooms reported by students did not differ. Since teachers were assigned in accordance with the classroom organization, the number of different students enrolled by teachers in their several classes also did not differ. The SWS organization scheme, as developed in these schools, would appear to have been a new means of organizing the use of classroom units, rather than a means of organizing the time of students within the classroom units. Thus, the movement of SWS students from classroom to classroom remained the same as that of the "subject-area" organization; but the movement between or among groups of classrooms differed, in fact, was reported to be less in the SWS than in the subject-matter area schools. Diagrammatically the differences in movement patterns may be seen in the following rough drawing, in which the heavily shaded represent the predominant paths of student circulation.

Type I



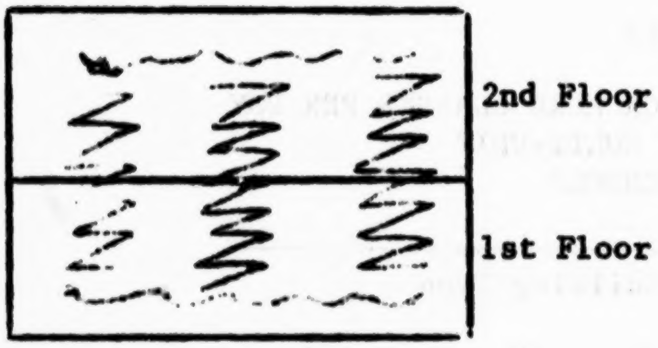
Multi-story: SWS

Type III



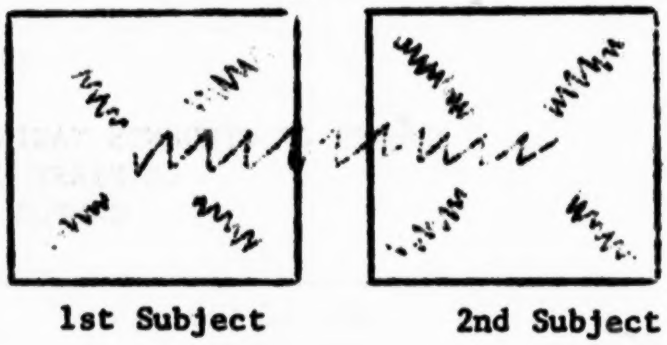
Campus: SWS

Type II



Multi-story: Subject

Type IV



Campus: Subject

Hypothesis Seven

"Compact" schools (Type I and Type II) contain less square feet of roof area per enrolled student than "Campus" schools (Type III and Type IV).

It was assumed at the time that the 34 schools were selected, the so-called "compact" buildings would provide less square feet of roof area per student than decentralized or "campus" type buildings. To test the adequacy of this assumption, the architectural firm responsible for the design of each building was asked to provide an estimate of the building's roof area (exclusive of overhangs, exterior corridors, gymnasium, pools, auditoriums). Their estimates are summarized in Table C.14. When the areas were divided by the 1960-1961 enrollments provided by each school a range in square feet per pupil of 38.36 to 218.6 was determined. That such wide variation occurred in school construction is of itself an interesting commentary on the diversity in school architectral practice of the period. However, the compact buildings were reported--on the average--to contain less square feet per pupil than that reported for "campus" schools. The difference averaged about 15 square feet per pupil, a surprisingly small amount in view of the fact that all "compact" buildings used in this study were two or more stories. The classification hypothesis, therefore, was accepted.

It should be noted, however, that 19 of the 22 "campus" building provided less square feet of roof area per pupil than "compact" school No. 13 (145.1 square feet per pupil) and that nine of the eleven "compact" buildings provided more square feet per pupil than "campus" school No. 10 (44.9 square feet of roof area per pupil). The variance in area per pupil within the two types was significant, hence generalizations from these data concerning degrees of "compactness" are only partially justified.

TABLE C.14

SQUARE FEET OF ROOF AREA PER PUPIL
(Excluding pools, gyms, auditoriams, overhangs
and roofed over exterior corridors)

Compact

Building Number	No. Square Feet (Pupil)
9)	64.3
13)	145.1
14)	97.2
20)	79.2
21)	42.04
22)	121.23
23)	74.1
25)	58.4
27)	59.9
31)	65.5
33)	38.36

Sum of X	845.33
Sum of X^2	75616.61
Mean	76.85
Number 11	11
Variance	1065.92

Campus

Building Number	No. Square Feet (Pupil)
1)	77.4
2)	79.7
3)	72.1
4)	83.5
5)	103.0
6)	170.3
7)	87.9
10)	44.9
11)	52.1
12)	158.7
15)	68.9
16)	62.8
17)	81.4
18)	79.6
19)	79.4
24)	96.8
26)	75.1
28)	86.5
29)	99.9
30)	103.4
32)	132.1
34)	218.6

Sum of X	2114.1
Sum of X^2	238125.09
Mean	96.1
Number	22
Variance	1665.2

3. Summary

Of the seven classification hypotheses tested, only two were valid in practice.

With respect to the variable "compactness", the group of schools so classified reported less roof area per student than non-compact or "campus" schools.

With respect to the variable "pattern of utilization", less inter-unit student movement was reported in the group of SWS types than in "Subject Area" types; however, the degree of overall student movement among classrooms, the number of subjects per student and the teacher pupil ratios were similar in the two types of schools.

With respect to personnel characteristics, significant differences were found among the students and teachers of the five types of buildings. Most of these differences were inherent because of similar and predominant differences in the communities in which the schools were located; that is, it was not possible to match the schools by types with respect to observed differences in size, type of sponsoring community, socio-economic distribution of the general (hence the school) population and geographic location.

Certain corrective steps were required and successfully undertaked. In order to correct for the factor of school size, this variable was included (along with type, design and utilization of buildings) in the main line of investigation. In order to correct for differences in personal characteristics among students and teachers, stratified random samples were extracted which distributed students and teachers proportionatly by known factors within each building type and within each school. This procedure made possible the comparison of schools by type, size, design and utilization without the intervention of socio-economic level as a factor.

In summary, the 34 schools--while not representative of all new schools--were indeed representative of those constructed in the highly populace urban and suburban areas of the United States and as such were deemed to constitute a reasonable and useful sample for study. The classification of the 34 schools by building types was logically adequate; in practice, however, the patterns of utilization required by the classification scheme were not fully realized in practice. This suggests that school officials had not put into practice--at this early stage of development of the SWS pattern of utilization--all of the conditions theoretically demanded by that pattern of utilization.

Having successfully undertaken the corrective steps described, it was concluded that the 34 schools in general--and the classifications thereof--satisfied study requirements and warranted the examination and comparison of the ten hypothese related to interaction and attitude. The results of tests of the substantive hypotheses, therefore, are presented in following sections of the report.

APPENDIX B

Reference Tables and Materials

For Use With
Chapter 3

NAMES AND NUMBERS OF SCHOOLS BY TYPES

		NAME OF SCHOOL	LOCATION
Type I		Compact: SWS (3)	
	22	Maine Township West	Des Plaines, Illinois
	23	Kimball	Royal Oak, Michigan
	33	Shaker	Newtonville, New York
Type II		Compact: Subject (8)	
	09	Northwest Classen	Oklahoma City, Oklahoma
	13	Columbus	Columbus, Nebraska
	14	Manden	Manden, North Dakota
	20	Woodrow Wilson	Portland, Oregon
	21	Brookfield	Brookfield, Wisconsin
	25	Hempfield	Greensburg, Pennsylvania
	27	Hampton	Hampton, Virginia
	31	Glenwood	Canton, Ohio
Type III		Campus: SWS (8)	
	02	Mayfair	Bellflower, California
	04	Bellflower	Bellflower, California
	10	Hueytown	Birmingham, Alabama
	12	Garinger	Charlotte, North Carolina
	24	A. C. Flora	Columbia, South Carolina
	26	North Hagerstown	Hagerstown, Maryland
	28	Andrew Warde	Fairfield, Connecticut
	30	Fairmont	Kettering, Ohio
Type IV		Campus: Subject (12)	
	01	Hiram Johnson	Sacramento, California
	05	Sunnyside	Tucson, Arizona
	08	Hanover Park	Hanover, New Jersey
	11	West Charlotte	Charlotte, North Carolina
	15	Kennett	Kennett, Missouri
	16	Riverview Gardens	St. Louis, Missouri
	17	Shorline	Seattle, Washington
	18	Mt. Rainier	Seattle, Washington
	19	Mark Morris	Longview, Washington
	29	John Jay	Katonah, New York
	32	Linton	Schenectady, New York
	34	Middlebury	Middlebury, Vermont
Type V		Campus: Grade (3)	
	03	Glendora	Azusa, California
	06	San Angelo	San Angelo, Texas
	07	Syosset	Syosset, Long Island, New York

FINAL DESIGN

	Compact	Campus	Total
SWS	3	8	11
Subj.	8	12	20
Tot.	11	20	31

B.2

GRADES IN HIGH SCHOOL

Grades	Compact-Subject	Compact-SWS	Campus-Subject	Campus-SWS	Campus-Grade
7-12		2	3		
8-12					
9-12	3	1	5	5	2
10-12	5		4	3	1

B.3

GRADES TAUGHT IN DISTRICT

Grades	Compact-Subject	Compact-SWS	Campus-Subject	Campus-SWS	Campus-Grade
K-12	4	2	6	5	1
1-12	3		2	1	1
7-12			1	1	
9-12	1	1	2		1
10-12			1	1	

This aspect is of importance when considered in terms of the nature of the administrative structure required in one type district as compared to another. The K-12 and the 1-12 districts do not require noteworthy differences in administrative organization. This can also be said of the 7-12, 9-12, and 10-12 districts. With this in mind, the groups are essentially comparable.

U.S. OFFICE PROJECT #918

CHARACTERISTICS OF SCHOOLS
Type I
Compact: School-Within-School

Code	Enrollment	Grades In The School	Number of Teachers	Teacher Pupil Ratio	Average Enrollment Per Grade
22	2,387	9-12	118.5	20.14	596.75
33	1,369	7-12	78	17.55	228.17
23	1,851	9-12	81.5	22.71	462.75
Total	5,607	-	278.0	-	1,287.67
Average	1,869	-	92.67	20.13	429.22

B.5

U.S. OFFICE PROJECT #918

CHARACTERISTICS OF SCHOOLS
Type II
Compact: Subject

Code	Enrollment	Grades In The School	Number of Teachers	Teacher Pupil Ratio	Average Enrollment Per Grade
14	471	10-12	18.5	25.46	157.00
13	452	10-12	21.5	21.02	150.67
21	1,200	9-12	69	17.39	300.00
25	1,500	10-12	66	22.73	500.00
27	2,254	10-12	85.5	26.36	751.33
9	2,053	9-12	73	28.12	513.25
20	1,813	9-12	74.5	24.34	453.25
31	1,007	10-12	45	22.38	335.67
Total	10,750	-	453	-	3,161.17
Average	1,343.75	-	56.63	23.48	395.15

B.6

U.S. OFFICE PROJECT #918

CHARACTERISTICS OF SCHOOLS
Type III
Campus: School-Within-School

Code	Enrollment	Grades In The School	Number of Teachers	Teacher Pupil Ratio	Average Enrollment Per Grade
2	1,160	9-12	45	25.78	290.00
30	1,826	10-12	90	20.29	608.67
12	1,641	10-12	58	28.29	547.00
28	1,442	9-12	82	17.59	360.50
10	1,150	10-12	43	26.74	383.33
24	830	9-12	41	20.24	207.50
26	1,490	9-12	56.5	26.37	372.50
4	1,783	9-12	65	27.43	445.75
Total	11,322	-	480.5	-	2,386.62
Average	1,415.25	-	60.06	24.09	401.62

B.7

U.S. OFFICE PROJECT #918

CHARACTERISTICS OF SCHOOLS
Type IV
Campus: Subject

Code	Enrollment	Grades In The School	Number of Teachers	Teacher Pupil Ratio	Average Enrollment Per Grade
34	599	7-12	31.5	19.02	99.83
32	1,562	10-12	94	16.62	520.67
8	925	9-12	55	16.82	231.25
29	668	7-12	46	14.52	111.33
11	854	10-12	34	25.12	284.67
15	564	9-12	20.5	27.51	141.00

16	1,404	9-12	67.5	20.80	351.00
1	1,997	10-12	92	21.71	665.67
5	620	9-12	29.5	21.02	155.00
17	1,569	10-12	66	23.77	523.00
19	992	7-12	41	24.20	165.33
18	708	9-12	27	26.22	177.00
Total	12,462	-	573.4	-	2,092.22
Average	1,038.5	-	50.33	21.44	285.45

B.8

U.S. OFFICE PROJECT #918

CHARACTERISTICS OF SCHOOLS
Type V
Campus: Grade Level

Code	Enrollment	Grades In The School	Number of Teachers	Teacher Pupil Ratio	Average Enrollment Per Grade
7	1,239	9-12	76	16.30	309.75
3	1,583	9-12	52	30.44	395.75
6	1,406	10-12	73	19.26	468.67
Total	4,228	-	201	-	1,174.17
Average	1,409.3	-	67	22.00	391.39

TYPE I

Characteristics of Schools Compact: School-Within-A-School

Code	Year Bldg. Occupied	% Students Transported School Bus	Per Pupil Expenditure	Grades Taught in Dist.	Type of Community	Socio. Econ. Index	% Graduates Attend College	Occupational Level	No. of High Schools in District	Race Intermix	% Male Teachers	Full Time non-teaching	Part Time non-teaching
22	59	83	570	9-12	sub. indust.	12.96	63	8.42	2	2.20	75	12	0
33	58	90	515	K-12	"bed" suburb	16.15	38	4.6	1	1.26	55	13	4
23	57	0	425	K-12	rural urban	11.00	43	5.2	2	1.54	72	4	4
Total		173	1510.00			45.11	144	940	5	5.10	202	29	8
Average		57.67	503.33			15.03	48	3.13	1.66	1.7	67.3	9.66	2.66

TYPE II

Characteristics of Schools Compact - Subject

Code	Year Bldg. Occupied	% Students Transported School Bus	Per Pupil	Expenditure	Grades Taught in Dist.	Type of Community	Socio. Econ. Index	% Graduates Attend College	Occupational Level	No. of High Schools in District	Race Intermix	% Male Teachers	Full Time non-teaching	Part Time non-teaching
14	57	0	270		1-12	small city	18.10	42	6.56	1	1.95	65	2	2
13	58	0	342		K-12	agric indust town	15.88	36	6.28	1	1.32	70	2	2
21	55	98	541		9-12	"bed" suburb	13.7	60	3.90	1	1.39	67	10	17
25	56	93.2	350-399		K-12	rural urban indst.	18.17	18.6	8.73	1	1.80	69	6	6
27	58	65	240		1-12	rural urban milt.	14.74	50	5.56	2	1.20	35	4	2

9	55	3	under 250	K-12	urban country metro	13.41	78	4.90	11	1.6	53	9	1
20	56	0	350-399	K-12	metro. resid.	11.11	73	4.52	4	1.31	53	6	12
31	57	95	289	1-12	"bed" suburb	11.34	51	5.84	1	1.61	60	7	2
Total		354	2612.00			116.45	409	629	22	12.18	454	46	44
Average		44.25	326.50			14.55	51.13	5.79	2.75	1.52	56.75	5.75	5.5

TYPE III

Characteristics of Schools　　　Campus: School-Within-A-School

Code	Year Bldg. Occupied	% Students Transported School Bus	Per Pupil Expenditure	Grades Taught in Dist.	Type of Community	Socio. Econ. Index	% Graduates Attend College	Occupational Level	No. of High Schools in District	Race Intermix	% Male Teachers	Full Time non-teaching	Part Time non-teaching
2	59	15	350	K-12	"bed" suburb	15.87	35	8.39	2	1.21	75	4	3
30	57	35	325	K-12	"bed" suburb	15.20	40	6.99	1	1.22	50	12	0
12	59	0	284	7-12	rural	17.87	65	8.03	5	1.00	53	4	0
28	56	16	420	K-12	"bed" suburb	15.11	55	5.20	2	2.38	58		
10	58	45	250-299	10-12	suburb resid.	16.79	25	9.16	11	1.20	33	5	4.5
24	59	70	250	1-12	"bed" suburb	10.29	75	2.21	8	1.05	33	3	3
4	50	15	350	K-12	"bed" suburb	15.01	35	8.31	2	2.20	60	9	2

26	58	40	325	K-12	rural urban	15.55	50	5.00	7	1.45	66	4	4
Total		236	2578			121.69	380	53.29	38	12.41	428	41	18.5
Average		29.5	323.63			15.21	47.5	4.43	4.75	1.034	53.5	5.85	2.64

TYPE IV

Characteristics of Schools Campus - Subject

Code	Year Bldg. Occupied	% Students Transported School Bus	Per Pupil Expenditure	Grades Taught in Dist.	Type of Community	Socio. Econ. Index	% Graduates Attend College	Occupational Level	No. of High Schools in District	Race Intermix	% Male Teachers	Full Time non-Teaching	Part Time non-teaching
34	57	45	360	K-12	college rutral village	15.28	54	7.90	1	1.35	60	2	1
32	58	0	617.30	10-12	urban center	16.58	50	5.80	2	1.86	46	23	1
8	56	99	735	9-12	"bed" suburb	14.07	55	4.70	1	2.05	65	6	9
29	56	99	820	K-12	village "bed"	15.33	75	4.36	1	1.59	67	5	1
11	54	0	284	7-12	city	17.87	60-65	8.03	5	1.00	53	4	0
15	55	40	236	1-12	town agri. indust.	13.77	50	16.02	1	1.88	39	3	0

16	57	89	397	K-12	"bed" suburb	16.02	45	4.90	1	1.88	64	3	1
1	58	26	484	K-12	resid. indst.	17.20	50	3.70	3	1.15	62	18	0
5	57	33	400-499	9-12	non-farm rural	17.05	28-34	8.79	1	1.15	63	3	0
17	55	75	350-399	K-12	commerc. bed	13.94	72	5.56	1	1.90	64	9	1
19	57	25	350-399	K-12	indst. town	16.16	24-49	6.70	2	1.69	71	5	4
18	58	60	300-349	1-12	resid.	16.17	35	7.15	4	1.27	63	3	4
Total		591	30199.3			187.44	746	83.61	23	18.77	717	84	22
Average		49.25	436.20			14.57	49.13	6.96	1.9	1.56	59.75	7	1.88

TYPE V

Characteristics of Schools — Campus - Grade

Code	Year Bldg. Occupied	% Students Transported School Bus	Per Pupil Expenditure	Grades Taught in Dist.	Type of Community	Socio. Econ. Index	% Graduates Attended College	Occupational Level	No. of High Schools in District	Race Intermix	% Male Teachers	Full Time non-teaching	Part Time non-teaching
7	56	98	700	K-12	"bed" lit indst	14.80	65	3.25	1	2.20	56	7	0
3	58	24	450	9-12	"bed" suburb	14.15	58	5.35	2	1.1	60	12	1.6
6	58	8	300-349	1-12	urban center	15.0	68	6.32	1	1.9	54	12	1
Total		31	1485			43.95	191	14.92	4	52	170	31	2.6
Average		43.6	495			14.65	63.66	8.61	1.33	1.73	56.6	10.33	86

DISTRIBUTION OF STRATIFIED-RANDOM SAMPLE OF STUDENTS BY PARTICIPATING SCHOOL

Type School	School Number	Enrollment (1960-61)	Responses	Sample Girls	Sample Boys	Total 1st Sample	Actual Sample % Employed By Type
I	22	2,387	2,082	204	207	411	
	23	1,851	1,619	145	151	296	
	33	1,369	370	39	43	82	
		5,607	4,071	388	401	789	1,069
II	14	471	420	79	39	78	
	13	452	415	31	33	64	
	21	1,200	1,058	104	107	211	
	25	1,500	1,239	99	107	206	
	27	2,254	1,707	138	155	293	
	09	2,053	1,791	158	179	337	
	20	1,813	1,563	140	151	291	
	31	1,007	661	65	68	133	
		10,750	8,854	774	839	1,613	2,111
III	02	1,160	966	109	112	221	
	30	1,826	1,551	127	138	265	
	12	1,641	1,183	82	88	170	
	28	1,442	1,322	116	133	249	
	10	1,150	756	53	51	104	
	24	830	650	49	50	99	
	04	1,783	1,292	132	135	267	
	26	1,490	1,176	115	115	230	
		11,322	8,896	783	822	1,605	2,199
IV	01	1,997	1,621	150	165	315	
	05	620	570	58	57	115	
	08	925	871	71	76	147	
	11	854	497	36	41	77	
	15	564	419	38	41	79	
	16	1,404	1,273	118	118	236	
	17	1,569	1,430	114	123	237	
	18	708	578	44	38	82	
	19	992	379	39	40	79	
	29	668	210	20	21	41	
	32	1,562	1,187	94	91	185	
	34	599	269	25	26	61	
		12,462	8,304	807	837	1,644	1,883

V	06	1,406	1,262	106	107	213	
	07	1,239	799	78	83	161	
	03	1,583	1,068	68	118	186	
		4,228	3,129	252	308	560	706
Total		44,369	34,254	6,211	3,004	3,207	7,968

The responses were first divided by sex. Of the total completed responses 50.442% were boys and 49.558% girls. The total responses were then divided by a measure of socio-economic level (see Duncan scale). Arbitrarily, the responses were dichotmized around the mean score of 46.3 for the total responses. Of these, 48.6% fell below the mean and 51.4% above. The responses were again divided: by grade level in which four groups (grades 9-12) were initially allowed, but only grades 10-12 actually employed. The responses were further divided by the number of years enrolled in the school (1-4).

The resulting distribution produced these combinations of factors:

Sex	SOI	Grade	Years in This School
1 (male)	1 (high)	1 (g)	1
1	1	1	2
1	1	1	3
1	1	1	4 or more
1	1	2 (10)	1
1	1	2	2
1	1	2	3
1	1	2	4 or more
1	1	3 (11)	1
1	1	3	2
1	1	3	3
1	1	3	4 or more
1	1	4 (12)	1
1	1	4	2
1	1	4	3
1	1	4	4 or more
1	2 (low)	1	1 (16 combinations as above)
2 (famale)	1	1	1 (16 combinations as above)
2	2	1	1 (16 combinations as above)

The total responses were distributed into the 64 cell matrix which resulted from the interaction of the four factors. Some cells were not filled; some contained fewer than 50 subjects and did not warrant inclusion in the final distribution. In doing so, 34,254 subjects, 94% of the total, were retained for proportionate distribution within each school and each type.

A marginal Chi-square test was run on the resulting distribution to determine the number of subjects theoretically expected in each cell if students were distributed by chance. The greatest difference between actual distribution and expected distribution was a factor of 4. The total number included in the sample to be extracted, therefore, was four times less than the total number of responses. In actuality, a sample of responses was extracted in each school in exact proportion to the percents of distribution of factors of sex, years in the school, grade level, and socio-economic level occuring in the total population of 34,254 subjects. The extraction was made in accordance with standard tables of random numbers. The resulting total was 6211 or 18.1 percent of the total. The discrepancy between the 8500 expected in a theoretically perfect sample and the 6211 actually produced is accounted for by the fact that in some schools, certain combinations did not appear and a sample could not be extracted. A fixed interval sample of remaining cells was extracted to bring the sample total without bias to 7,968 or 23.2 per cent of the total.

ANALYSIS OF TEACHER DATA
BY TYPES OF SCHOOLS

1897 Teachers in 34 Schools

Column	Item	X^2 Value	Sig. .05	Sig. .01
8	Age (over and under 40)	42.79		*
9	Sex (M-F)	67.78		*
10	Married (M-S)	18.50		*
11	Years on staff (over and under 2 Yrs.)	4.40		
12	Degrees held (BA and MA or over)	42.79		*
13	Subject taught (code 0-9)	86.47		*
18	Most difficult task (0-6)	27.37	*	
19	Easiest task	15.06		
38	S.O.H. Difficulty preparing lesson plan (Admin-Teacher others)	32.91		*
39	S.O.H. Evaluating a Student's performance (5 x 8)	102.51		*
40	S.O.H. (5 x 5) Introducing New Teaching Technic	86.53		*
41	S.O.H. (5 x 7) Working on Faculty Committee	124.52		*
42	S.O.H. (5 x 9) Being Accepted by Students	288.89		*
43	S.O.H. (5 x 7) Relationship with another teacher	131.55		*
48	(5 x 3) How long have you known student	36.88		*
49	Do you know from out of school	10.62	*	
50	Do you know student from family, neighborhood or other place.	4.00		
51	Grade of student chosen	33.52		*
53	How would you classify student	4.67		
63	Major problem	105.64		*
76	I.A.V. Classification	9.49		

CHARACTERISTICS OF TEACHERS BY AGE, SEX, EDUCATIONAL LEVEL, AND MARITAL STATUS

Type	UNDER 40 YEARS AGE GROUP									OVER 40 YEARS AGE GROUP								
	Male				Female					Male				Female				
	1	2	3	4	5	6	7	8	Total	1	2	3	4	5	6	7	8	Total
I	35	74	15	9	16	7	32	14	202	5	17	2	1	6	3	1	8	43
II	75	56	35	8	36	7	58	4	279	20	34	2	5	37	17	14	28	157
III	62	68	11	12	41	16	29	18	257	16	63	1	6	32	20	17	38	193
IV	123	93	24	17	42	19	49	19	386	29	48	2	2	30	33	14	25	183
V	28	38	6	9	10	5	16	9	121	6	29	1	1	9	12	7	11	76
Total	323	329	91	55	145	54	184	64	1245	76	191	8	15	114	85	53	110	652

(Key)

AB: Mar: Male: Young	AB: Mar: Fem: Young	1,5 (BA)
MA: Mar: Male: Young	MA: Mar: Fem: Young	
AB: Single Male: Young	AB: Single Fem: Young	3,7 (MA)
MA: Single Male: Young	MA: Single Fem: Young	
		2,4,6,8 (Marital Status-Married)

1. 1897 teachers sorted by combinations of age, sex, educ. level and marital status.
2. 16 combinations produced.
3. These were distributed and X^2 expected, calculated.
4. Sample of 1189 extracted ($\frac{1189}{1898}$ or 62.6%) in accordance with average difference among cells.
5. Distribution calculated on "young" group because of small cells in "old" (10 of 40 less than 5).
6. X^2 margins for 1189 calculated and new "expecteds" entered.
7. Actuals extracted randomly from table.
8. Adjustments made to complete table.

CHARACTERISTICS OF TEACHERS BY AGE, SEX, EDUCATIONAL LEVEL, AND MARITAL STATUS

Type	UNDER 40 YEARS AGE GROUP									OVER 40 YEARS AGE GROUP								
	Male				Female					Male				Female				
	1	2	3	4	5	6	7	8	Total	1	2	3	4	5	6	7	8	Total
I	26	5	27	17	7	2	5	1		11	6	5	3	14	1	6	8	144
II	46	13	47	24	17	1	4	4		24	20	5	9	32	7	4	16	273
III	48	5	49	32	11	-	12	5		20	21	10	9	23	8	14	16	283
IV	61	22	62	33	16	1	11	2		24	18	14	21	35	9	12	22	363
V	21	3	22	15	4	1	6	-		9	7	4	7	10	4	6	7	126
Totals	202	48	207	121	55	5	38	12		88	72	38	49	114	29	42	69	1189

1, 5 (BA) 3, 7 (MA) 2, 4, 6, 8 (Marital Status - Married)

B.18

NUMBER OF DIFFERENT SUBJECTS TAKEN BY STUDENTS BY TYPE OF BUILDING

(number of subjects)

Type	1	2	3	4	5	6	7	Total
I		2	6	256	376	335	67	1042
II		3	26	210	693	778	128	1838
III		5	13	175	682	1182	25	2082
IV		4	11	158	647	1061	277	2158
V		1	14	68	283	276	44	686
Totals		15	70	867	2681	3632	541	7806

B.19

NUMBER OF DIFFERENT SUBJECTS TAKEN BY STUDENTS BY DESIGN OF BUILDING

(number of subjects)

Design	1	2	3	4	5	6	7	Total
Compact		5	32	466	1069	1113	195	2880
Campus		10	38	401	1612	2519	346	4926
Totals		15	70	867	2681	3632	541	7806

B.20

NUMBER OF DIFFERENT SUBJECTS TAKEN BY STUDENTS BY UTILIZATION OF BUILDING

(number of subjects)

Utilization	2	3	4	5	6	7	Total
SWS I	7	19	431	1058	1517	92	3124
Subject II	7	37	368	1340	1839	405	3996
Totals	14	56	799	2398	3356	497	7120

B.21

NUMBER OF DIFFERENT SUBJECTS TAKEN BY STUDENTS BY SIZE OF ENROLLMENT

	(number of subjects)							
Size	1	2	3	4	5	6	7	Total
Small		4	8	222	595	1025	185	2039
Medium		1	6	120	275	776	91	1269
Large		11	56	525	1873	1801	265	4531
Totals		16	70	867	2743	3602	541	7839

B.22

AVERAGE NUMBER OF DIFFERENT CLASSROOMS PER STUDENT IN NORMAL SCHOOL DAY BY DESIGN OF BUILDING

Design	No. of Students	No. of Classrooms	Average Number of Classrooms Per Student
Compact	2,926	17,609	6.02
Campus	4,984	28,858	5.79
Totals	7,910	46,467	5.88

B.23

AVERAGE NUMBER OF DIFFERENT CLASSROOMS PER STUDENT IN NORMAL SCHOOL DAY BY UTILIZATION OF BUILDING

Utilization	No. of Students	No. of Classrooms	Average Number of Classrooms Per Student
SWS	3,158	18,674	5.91
Subject	4,059	23,882	5.88
Totals	7,217	42,556	5.90

AVERAGE NUMBER OF DIFFERENT CLASSROOMS PER STUDENT IN NORMAL SCHOOL DAY BY SIZE OF BUILDING

Size of Enrollment	No. of Students	No. of Classrooms	Average Number of Classrooms Per Student
Small	2,069	12,099	5.87
Medium	1,308	7,574	5.79
Large	4,615	26,794	5.81
Totals	7,983	46,467	5.82

Chapter 4

RESULTS OF STUDY: FREQUENCY OF INTERACTION

In this and subsequent sections of the report, results of the substantive hypotheses described on pages 2.20 and 21 are presented. First of these are organized to provide evidence on this basic question:

> "Are patterns and/or frequency of interaction among school personnel related to the type of school environment (building type)? Can the frequency of interaction be modified by altering building design or pattern of building utilization?"

Three additional operational hypotheses were related to those personnel attitudes which have been generally associated with certain objectives of secondary education. These hypotheses were organized to provide evidence on this basic question:

> "Are the patterns of attitudes of school personnel related to the type of school environment (building type)? Can the patterns of attitudes be modified by altering building design or pattern of building utilization?"

The purpose of this chapter is to present that evidence which was found in the study of 34 selected high schools to be related to the first of the several operational hypotheses.

1. Method of Presentation

The method of presentation employed in this chapter is repeated in subsequent sections. The hypothesis is examined for variance among the appropriate school personnel groups within each of the four environmental classifications: (1) building type, (2) building design, (3) building utilization and (4) school size. The results of the individual tests of sub-hypotheses are presented in tables of the Appendix and those of the general hypotheses are presented in summary tables.

2. The Influence of Size of School As An Intervening Factor

Before presenting the tests of hypotheses, the intervening variable, "size of school", must be introduced. In Section B, it was noted that the schools vary by size among the building types and that this factor could not be not controlled directly in the sample. When the 34 schools were examined for their average enrollment per grade (the device employed to equate three year secondary schools with four year schools), the average (mean) size was calculated at 379. The standard deviation of the distribution was 169. Schools were divided by size into groups of "large", "medium" and "small". Large schools included those enrolling not less than 464 pupils per grade (mean plus one-half S.D.). Small schools included those enrolling not more than 294 students per grade (mean less one-half S.D.). Medium enrollment schools included those enrolling between 295 and 463 pupils per grade. When the 34 schools were classified by size the distribution by type of school revealed a large bias in the sample. The results are presented in Table D.1.

TABLE D.1

Size of Schools by Building Type

Size Classification	Average Enrollment Per Grade	Number of Schools by Building Type I	II	III	IV	V	Total
Large	563	2	4	2	3	2	13
Medium	370	0	2	5	0	1	8
Small	197	1	2	1	9	0	13
All Schools	379	3	8	8	12	0	34
Average per pupil enrollment:		497	417	399	296	450	379

From Table D.1 it can be observed that:

Type I schools were generally large, the average enrollment exceeding the mean for large schools (464 per grade).

Type II and Type III schools were both medium size, their average enrollments falling between 294 and 464. Their average enrollments did not differ significantly, therefore, Type II and Type III, were considered to be comparable in size.

Type IV schools were generally small, the average enrollment falling at the upper range of the definition (294) for small schools.

Comparisons among schools by factors of interaction and attitude, therefore, were made extremely difficult because of uncontrolled differences by size of the schools. Comparisons could be made directly between Type II and Type III schools because of their comparable size. Comparisons between Type I and Type IV schools however, were equivalent to a comparison between large and small schools. Comparisons between Type I and Type II (or Type III) schools were equivalent to comparisons between large and moderate enrollment schools; and tests between Type II (or Type III) schools and Type IV schools were equivalent to comparisons between moderate and small enrollment schools.

Size was also a possible intervening factor in the individual building types. When the schools were grouped by design factors ("Campus vs. Compact") the distribution by size of school was not found to significant at the .05 level. Nonetheless, the average size of Compact buildings was almost one-half standard deviation higher than the mean for Campus buildings. Differences which might have occured when the comparisons were made between design types on interaction and attitude factors may well have been attributed to differences in size as well as (or instead of) differences in design factors. The distribution and means for design factors are presented in Table D.2.

TABLE D.2

Size Of Compact and Campus Buildings

Size	Compact	Campus	Total
Large	6	7	13
Medium	2	6	8
Small	3	10	13
Total	11	23	34
Average Per Grade:	434	353	379

X^2- 2.790 dif. -2 $P > .20$

Note: When Type V schools were removed, X^2= 2.904 d.f. -2 $P > .20$

A similar caution was warranted in analyses involving patterns of building utilization. As evidenced by Chi square tests presented in Table D.3, the distribution of SWS and Subject Area schools by size was significantly different at the .02 level. (Chi square was not significant at .05 level when Grade Level schools were included). The presence in the sample of a disproportionately large number of small, subject-area (Type IV) schools doubtlessly skewed the distribution. The mean enrollments of the SWS and Subject Area schools were almost one-half S.D. apart (420 and 353), although both fell within the range of medium enrollment (295-463) schools. Subsequently, when comparisons were made between SWS and Subject Area buildings, the differences which appeared between types were attributed to the factor of size as well as (or instead of) the factor of building utilization.

TABLE D.3

Size of School by Plan of Utilization

Size	SWS	Subject Area	Grade Level	Total
Large	4	7	2	13
Medium	5*	2**	1	8
Small	2	11***	0	13
Total	11	20	3	34
Average Per Grade:	420	353	450	379

X^2 = 8.272 (excluding Type III) X^2 = 5.560 (all three types)
df = 2 $p < .02$ df = 2 $p > .05$

* The five medium size SWS are Campus design.
** The two medium size Subject Area schools are Compact design.
*** Nine of the 11 small Subject Area schools are Campus design.

3. Analytic Method

It was noted in Table D.1,2, and 3 that size of school was significantly related to building types and, therefore, could intervene in any analyses by building type. The extent to which size of school would intervene, however, was not known; therefore, a method of analysis was devised that would determine in each application the extent to which such intervention was occuring. The procedures employed were these:

(1) It was assumed that size of school would intervene 100 per cent in analyses by building types that is to say: the results of analysis by building type would duplicate those of analysis by size of school alone. For example, because Type I schools were large schools, it was assumed that the results obtained from an analysis of student interaction in Type I schools would be precisely the same as those obtained from analysis by large schools alone.

(2) With this assumption in mind, tests by size of school were conducted first. The pattern of responses which resulted from these tests were then used to "predict" the "duplicate" pattern of responses that would be expected to result in subsequent analyses by types of schools. For example, if frequency of Student: Principal interaction was found to be low in large schools and high in small schools, the prediction was made that frequency of interaction would also be low in Type I schools (which are large) and high in Type IV schools (which are small). In this manner, predictions were made for the following types of schools, these being the types shown in Table D.1,2, and 3 to be significantly related to size of school.

Table D.1	Type I Schools	Duplicate of Large Schools
	Type IV Schools	Duplicate of Small Schools
	Type II, III Schools	Duplicate of Medium Schools
Table D.2	Compact and Campus	Duplicate of Medium Schools (with allowance for fact that Compact schools generally are larger than Campus schools.)
Table D.3	SWS and Subject Areas	Duplicates of responses of medium size schools (with allowance for fact that SWS schools generally are larger than Subject Area schools.)

(3) The hypotheses related to building type, design and pattern of utilization were then tested. The results actually found were then compared to the "expected" observations for each building type predicted previously on the basis of the results reported for size of school alone.

(4) When the observations actually made for building types agreed with those "expected" from size alone, any difference observed by type, design or by pattern of utilization were discounted. The observed differences were attributed to size of school.

(5) When observed results by building types differed significantly from those that were "expected" from size alone, differences were attributed to the specific building factor in addition to or instead of size.

4. Hypothesis One

There is no relationship between building type factors and the frequency of interaction among school personnel.

Fifty-two sub-hypotheses were tested as a basis for examining the general null hypothesis. Twenty-eight of these related to student interaction with five selected school officials. Twenty-four related to teacher interaction with five selected school officials and with two classes of other teachers.

A. Student Interaction With School Officials

The frequency of interaction between students and five selected school officials was measured by student self-reports. The officials included: Principal, vice-principal(s) homeroom teacher(s) counselor(s) and librarian(s). Scores ranged from zero ("rarely") to four (2 to 3 times daily) with each of the five officials. The maximum score for an individual interaction between student and one official was four. The maximum score for total interaction between each student and the five school officials was twenty. Differences in means were examined by F test and distributions of responses by Chi square.

(1) Sub-Hypothesis I-S-T

There is no relationship between building type factors and the total frequency of interaction between students and school officials.

Four building type factors were involved in testing the null hypothesis. Following the analytic method just described, the sub-hypothesis related to the factor, "size of school" was examined. In Table D.4, it is clear that large schools report the least total frequency of interaction and small schools the greatest.

TABLE D.4

Total Student Interaction With School Officials by Size of School

Sub-Hypothesis	Small	Medium	Large	Total	F	Sig.
I-S-T	1.89	1.81	1.73	1.77	18.406	.0005

Referring now to Table D.1, the distribution of types of schools by size may be depicted thusly:

	SWS	Subject
Compact	**Large**	**Medium**
Campus	**Medium**	**Small**

Fitting the results of interaction by size of school from Table D.4 into the building type model above, the predicted interaction by school types would become:

	SWS	Subject
Compact	**Low**	**Moderate**
Campus	**Moderate**	**High**

In Table D.5, the results of the actual tests of total interaction by types of schools are presented.

TABLE D.5

Total Student Interaction With School Officials
By Types of Schools

Sub-Hypothesis	I	II	III	IV	V	Total	X^2	Sign.
I-S-I	1.74	1.76	1.87	1.75	1.71	1.77	29.577	.01

It is evident that the Type III (Campus: SWS) reported the greatest frequency of interaction, all other types while less than that of Type III were comparable. The total frequency of interaction observed is depicted as follows:

	SWS	Subject
Compact	**Low**	**Low**
Campus	**High**	**Low**

When the observed results are compared to those predicted on the basis of size alone, differences by types are immediately apparent. The comparison is shown in the following chart:

"Predicted Result"

	SWS	Subject
Compact	**Low**	**Moderate**
Campus	**Moderate**	**High**

"Observed Result"

	SWS	Subject
Compact	Low	Low
Campus	High	Low

Differences between "Predicted" and "Observed" results are significant in three cells, namely:

(1) Type III school reports more interaction than expected.
(2) Type IV school reports less interaction than expected.
(3) Type II school reports less interaction than expected.
(4) Type I schools conform with expectations based on size alone.

It must be concluded, therefore, that size is not the only factor related to total student-school official interaction; indeed, the effect of size clearly is modified by building type.

Employing the same method, comparisons between "expected" and "observed" results were made for building design factors.

Because Campus schools and Compact schools were not significantly different by size (both enrolled moderate numbers of pupils per grade), only moderate differences, if any, should be reported in frequency of interaction between the two types of buildings. Because Compact schools were slightly larger (434 and 353) than Campus schools, if differences were to occur, total interaction should be higher in the smaller Campus type schools and lower in the larger Compact type school.

The results of the tests by building design are presented in Table D.6.

TABLE D.6

Total Frequency of Student Interaction With School Officials By Design of Building

Sub-Hypothesis	Compact	Campus	Total	X^2	Sig.
I-S-T	1.75	1.78	1.77	4.734	N.S.

No differences were found in total interaction by building design; no differences were predicted from the factor of size alone. Hence, it must be concluded that building design per se is not significantly related to frequency of interaction.

Tests were also made of interaction by plan of building utilization. Because the schools employing the SWS plan of utilization were significantly larger than those employing the Subject Area plan of utilization (420 and 353 per grade) it was predicted from the factor of size that differences would be found between the two types; and, specifically, that less interaction would be reported in the SWS type buildings and more in the Subject Area buildings.

The results reported in Table D.7 confirm the expectations. Significantly higher interaction was reported by the Subject Area organization schools. Hence, the conclusion is advanced that pattern of utilization per se is not related to total frequency of interaction. In other words, differences by plan of utilization can be accounted for by differences in the size of schools.

TABLE D.7

Total Frequency of Student Interaction With School Officials
By Building Utilization

Sub-Hypothesis	**SWS**	**Subject-Area**	**Total**	**X^2**	**Sig.**
I-S-T	**1.75**	**1.79**	**1.77**	**11.861**	**.05**

(2) Conclusions

These conclusions appear to be warranted by the analyses of total frequency of interaction between students and school officials by types of buildings.

(1) The total frequency of interaction by students with five types of school officials is itself not generally high (1.77 of a possible 4.0).

(2) Size of school is related to total frequency of interaction; in general large schools report less interaction than small schools.

(3) Size of school is the dominant factor with respect to frequency of interaction; design of school and plan of utilization per se are not significantly related. Any differences reported by design or utilization of school were accounted for by differences by size of school.

(4) When design and utilization patterns are combined, however, certain combinations are significantly related to total interaction.

Four observations were made:

1. Campus: SWS (Type III) reports greater interaction than
Campus: Subject (IV) even though Type IV schools are smaller and should have reported greater interaction.

2. Campus: SWS (III) reports greater interaction than
Compact: Subject (II) even though they have comparable enrollments, and should have reported no differences in interaction.

3. Compact: Subject (II) has same interaction as
Campus: Subject (IV) even though Type IV are smaller and should have reported greater interaction.

4. Campus: SWS (III) reports greater interaction than
Compact: SWS (I) but Type I is larger and was expected to report less interaction than the smaller Type III; therefore, size cannot be eliminated as the intervening variable in this application.

(5) On the basis of these observations, four conclusions are advanced tentatively with respect to design and utilization factors. Each warrants further study for validation:

(a) It seems clear that -- in schools of moderate enrollments (mean of 400 pupils per grade) -- the SWS pattern of utilization may encourage higher total student-official interaction than Subject-Area organization.

(b) It is possible that the Campus design may also encourage higher total student-official interaction than Compact design in schools of moderate enrollments, but the evidence is at best inferential.

(c) It seems clear that -- in schools of small enrollment (mean enrollment of 200 per grade) -- Campus design reduces total student-official interaction.

(d) There is no clear evidence to support the contention that the SWS pattern of utilization increases or decreases total frequency of interaction with school officials in schools with mean enrollments of 500 or more students per grade.

(3) Sub-Hypotheses Related to Student Interaction With Specific Officials

I-S-A: There is no relationship between size of school and student interaction with school principal.

I-S-B: There is no relationship between size of school and student interaction with school vice-principal(s).

I-S-C: There is no relationship between size of school and student interaction with homeroom teacher(s).

I-S-D: There is no relationship between size of school and student interaction with school counselor.

I-S-E: There is no relationship between size of school and student interaction with school librarian.

a. Differences by Size

In Table D.8, it is clear that student interaction with principals was reported to be highest among small schools and lowest among large schools. Student interaction with vice-principals was also greater within small and medium schools than large schools. Student interaction with homeroom teachers was greater in large and moderate enrollment schools than in small schools. Interaction between students and counselors, although relatively high in all schools, was not significantly different by size of school. Interaction with librarians was greatest in small schools and least in large schools.

TABLE D.8
Interaction Between Students and School Officials
By Size of School

Sub-Hypothesis	Small I	Medium II	Large III	Total	F	Sig.
I-S-A	1.56	1.29	1.18	1.25	46.220	.0005
I-S-B	1.48	1.50	1.30	1.38	29.744	.0005
I-S-C	2.46	2.61	2.68	2.64	3.535	.01
I-S-D	2.03	1.98	1.93	1.95	2.161	N.S.
I-S-E	1.91	1.66	1.56	1.62	17.372	.0005

Source: Appendix Tables D.1,2,3,4, and 5.

b. Expectations

If size is the dominant factor related to student-school official interaction, interaction results by building factors of type, design and utilization should follow the pattern of differences observed in Table D.8. These are:

1. **Small, Type IV schools should report:**
   - a. **Highest interaction with principals.**
   - b. **High interaction with vice-principals, equal that in Type II and Type III.**
   - c. **Least interaction with home-room teachers.**
   - d. **No differences with respect to interaction with counselors.**
   - e. **Highest interaction with school librarian.**
2. **Large Type I schools should report:**
   - a. **Least interaction with principals and vice-principals.**
   - b. **Most interaction with homeroom teachers.**
   - c. **No differences with respect to interaction with counselors .**
   - d. **Least interaction with school librarian.**
3. **Type II and Type III schools should report moderate to high interaction but should not differ in their patterns of responses. If differences do occur, Type III schools should report less interaction than the slightly smaller Type II schools.**

c. Observations

Results of the tests of sub-hypothesis I-A, I-B, I-C, I-D, and I-E by building type, are summarized in Table D.9.

TABLE D.9

Student-School Official Interaction
By Building Type

Sub-Hypothesis	School Official	I	II	III	IV	V	F Test	Level Sign.
I-A	Principal	1.18	1.24	1.27	1.30	1.18	8.245	.0005
I-B	Vice-Principal	1.23	1.38	1.50	1.34	1.41	24.339	.0005
I-C	Homeroom Teacher	2.81	2.69	3.01	2.35	2.60	29.961	.0005
I-D	Counselor	1.83	1.84	2.00	2.08	1.87	22.806	.0005
I-E	Librarian	1.67	1.64	1.58	1.66	1.47	6.531	.0005

Source: Appendix Tables D.6,7,8,9, and 10.

Results-observed differed from these "expected" in each sub-hypothesis:

1. As expected, the small, Type IV schools reported:

    a. Highest interaction with school principals.
    b. Least interaction with homeroom teachers.
    c. Highest interaction with school librarians.
    d. High interaction with vice-principals, equal or greater than reported by Type II and Type III.

    Contrary to expectation, Type IV schools reported significantly higher interaction with counselors.

2. The large, Type I schools, reported:

    a. Least interaction with principals and vice-principals as expected.
    b. High but not highest interaction with homeroom teachers.
    c. Low interaction with counselors contrary to expectation.
    d. High, rather than lowest interaction with librarians.

3. The Type II and Type III schools, as expected, reported moderate to high interaction with respect to principals, vice-principals, homeroom teachers, counselors, and librarians.

Contrary to expectation, the schools differed significantly on three measures of interaction. Type III schools reported higher interaction with homeroom teachers and counselors and Type II schools reported higher interaction with librarians.

d. Differences By School Design

Results of the tests of sub-hypothesis I-A, I-B, I-C, I-D and I-E by building design are presented in Table D.10.

TABLE D.10

Frequency of Student Interaction With School Officials
By Building Design

Sub-Hypothesis	Official	Design Type			
		Compact	Campus	F.	Sign.
I-S-A	Principal	1.22	1.27	2.725	.05
I-S-B	Vice-Principal	1.32	1.42	6.426	.0005
I-S-C	Homeroom Teacher	2.74	2.59	5.325	.0005
I-S-D	Counselor	1.84	2.01	15.490	.0005
I-S-E	Librarian	1.65	1.60	1.171	N.S.

Source: Tables 11, 12, 13, 14 and 15 of Appendix C.

e. Expectations

If size of school were the dominant factor in these applications, the medium size, Campus schools should not differ in their patterns of responses from the medium size, Compact schools. If differences were to occur between the types, the Campus schools should reflect more interaction than the slightly larger, Compact schools.

f. Observations

As expected, there were no significant differences by design type in student reports of interaction with librarians. Differences were significant between design types in the frequency of interaction reported for principals, vice-principals, homeroom teachers and counselors. Consistent with expectation, the slightly larger, Compact schools reported less student-official interaction with principals, vice-principals, counselors and librarians. Interaction with homeroom teachers, however, is greater in the Compact schools. Since this factor was also reported to be greater in large schools, the expectation is also satisfied.

g. Conclusions

Size is the dominant factor in accounting for differences between schools by design type in frequency of interaction. This is consistent with the conslusion drawn on the basis of total interaction; that is, that decentralization of school plant is not significantly related to frequency of interaction.

h. Differences By School Utilization

Results of the tests of sub-hypothesis I-A, I-B, I-C, I-D, and I-E by building utilization are presented in Table D.11.

TABLE D.11

Frequency of Student Interaction With School Officials by Building Utilization

		Utilization Type			
Sub-Hypothesis	Official	SWS	Subject	F	Sign.
I-S-A	Principal	1.23	1.27	2.310	N.S.
I-S-B	Vice-Principal	1.41	1.36	2.706	.05
I-S-C	Homeroom Teacher	2.78	2.50	20.138	.0005
I-S-D	Counselor	1.93	1.97	1.170	N.S.
I-S-E	Librarian	1.58	1.65	2.383	.05

Source: Tables 16, 17, 18, 19 and 20 of Appendix C.

i. Expectation

If size of school were the dominant factor in accounting for differences in frequency of student-school official interaction among schools with different patterns of building utilization, the SWS and Subject schools should both have reported moderate to high interaction, and differences between them should have been slight. The slightly larger, SWS schools should, in general, report less interaction except that with counselors.

j. Observations

As expected, the slightly larger, SWS schools reported less frequency of interaction with counselors and librarians. The differences in mean scores for principals and counselors were not significant between the two types, although the direction of observed differences were consistent with those predicted by the factor of size. Contrary to expectation, the smaller, Subject schools reported less interaction with vice-principals. Presumably, this can be accounted for by the nature of the small, Subject schools which are less likely to employ a vice-principal than are the larger, SWS schools.

k. Conclusion

With respect to internal differences, size appeared to be the dominant factor in accounting for differences in frequency of student-official interaction among schools which differ in plan of building utilization.

Discussion and Conclusions

In general the small Type IV and large, Type I schools conformed to expectations

by size. Among the moderate size, Type II and Type III schools, however, the Type III school reported higher interaction than expected on four of the five measures, three of which were significantly higher, and reported less interaction than the Type II school only with school librarians. The latter difference may be accounted for by the peculiar nature of the Type III schools which (1) are decentralized and (2) SWS in organization. Consequently, the opportunities provided students to interact with centrally located school librarians may be less in Type III schools than in the Compact: Subject-Area, Type II schools. If the latter argument is correct, there would appear to be a genuine difference between Type II and Type III schools in the direction indicated in the results of total interaction presented in Table D.5. On the basis of internal as well as total interaction data, the conclusion advanced earlier: that the SWS organization--when employed with a Campus design and enrolling moderate numbers of pupils per grade--promotes high student interaction with school officials now seems warranted.

B. Teacher Interaction With School Officials

The frequency of interaction between teachers and five selected school officials was measured by a teacher self-report. The officials included: principal, vice-principal, school counselor, "house administrator" (applicable only in SWS) and department head (if any). Also included were two classes of teachers, namely: (1) teacher(s) of same subject and (2) teacher(s) of other subjects. The instrument produced a maximum score of four ("2 or 3 times daily") and a minimum score of zero ("rarely") for each object of interaction. Because of the possible intervention of size of school as a variable, the same analytic method employed in the study of student interaction was also used in examining sub-hypothesis related to teacher interaction.

(1) Sub-Hypotheses Related to Teacher Interaction

I-T-F There is no relationship between school size and interaction between teachers and school principal.

I-T-G There is no relationship between school size and interaction between teachers and school vice-principal(s).

I-T-H There is no relationship between school size and interaction between teachers and school counselor(s).

I-T-I There is no relationship between school size and interaction between teachers and "house" administrators.

I-T-J There is no relationship between school size and interaction between teachers and department heads.

I-T-K There is no relationship between school size and interaction between teachers and other teachers of the same subject.

I-T-L There is no relationship between school size and interaction between teachers and teachers of other subjects.

a. Differences by School Size

TABLE D.12

Mean Interaction: Teachers and School Officials by Size of Building

		Size of Building				
Sub-Hypotheses	Official	Small	Medium	Large	F	Sig.
I-T-F	Principal	2.72	2.13	1.96	13.839	.0005
I-T-G	Vice-Principal	1.38	2.13	2.12	10.291	.0005
I-T-H	Counselor	2.62	2.58	2.42	1.999	N.S.
I-T-I	"House administrator"	0.11	0.92	0.55	10.987	.0005
I-T-J	Department Head	1.33	2.25	2.47	12.217	.0005
I-T-K	Teacher-Same Subject	3.03	3.34	3.29	1.135	N.S.
I-T-L	Teacher-Other Subject	2.97	3.05	2.86	2.015	N.S.

Source: Tables 21,22,23,24,25,26 and 27 of Appendix C.

b. Observations

The frequency of interaction reported in Table D.12, between teachers and school officials varies by type of official and by school size. Differences by size are noted between teachers and the schools' central administrators (i.e. principals and vice-principals) and also between teachers and the schools' secondary-level administrators (department heads and "house administrators"). Differences in teacher-counselor interaction were not significant, nor was level of teacher interaction with other teachers.

In general, teachers interacted more frequently with principals in small schools and more frequently with vice-principals in large schools. They also interacted more frequently with department heads in large schools.

c. Expectations

If size is the predominant factor in accounting for interaction differences among schools of differing building types, these results would have been expected:

1. The small Type IV schools should have reported:

   a. High interaction with principals.
   b. Low interaction with vice-principals.
   c. Low interaction with "house administrators".
   d. Low interaction with department heads.
   e. No differences with respect to counselors or other teachers.

2. The large Type I schools should have reported:

    a. Low interaction with principals.
    b. High interaction with vice-principals but not more than in moderate sized schools (Type II, IV).
    c. High interaction with department heads.
    d. Moderate interaction with "house administrators".
    e. No differences with respect to counselors or other teachers.

3. The moderate size Type II and Type IV schools should have reported:

    a. Moderate interaction with principals.
    b. High interaction with vice-principals.
    c. High interaction with "house administrators".
    d. Moderate interaction with department heads.
    e. No differences with respect to counselors or other teachers.

d. Differences by Building Type

The results of sub-Hypotheses I-T-F, I-G, I-H, I-I, I-J, I-K, and I-L are summarized in Table D.13.

TABLE D.13

Frequency of Teacher Interaction With School Officials by Building Type

Sub-Hypotheses	Object of Interaction	(Building Type) I	II	III	IV	V	F	Sign.
I-T-F	Principal	1.85	2.20	1.91	2.30	1.93	10.664	.0005
I-T-G	Vice-Principal	1.94	2.11	2.20	1.99	1.98	1.966	N.S.
I-T-H	Counselor	2.41	2.44	2.37	2.47	2.19	1.573	N.S.
I-T-I	"House Administrator"	0.21	0.27	1.29	0.18	0.91	80.912	.0005
I-T-J	Department Head	2.86	2.41	2.06	2.18	2.18	7.379	.0005
I-T-K	Teacher: Same Subject	3.06	2.81	2.83	2.93	3.03	1.985	N.S.
I-T-L	Teacher: Other Subject	3.37	3.21	3.28	3.29	3.39	0.570	N.S.

Source: Tables 28,29,30,31,32,33 and 34 of Appendix C.

e. Observation

With respect to the small, Type IV schools:

1. As expected, frequency of interaction was higher with principals, "house administrators" and department heads.
2. No differences were observed with respect to counselors or other teachers.
3. Contrary to expectation, no differences were observed with respect to vice-principals.

With respect to the large, Type I schools:

1. As expected, frequency of interaction was high with department heads and low with respect to principal and "house administrators".
2. As expected, no differences were observed with respect to counselors or other teachers.
3. Contrary to expectation, no differences were observed with respect to vice-principals.

With respect to Type II and Type III schools:

1. As expected, interaction with principals was moderate.
2. As expected, no differences were observed with respect to counselors or other teachers. Contrary to expectation, no differences were observed with respect to vice-principals.
3. Type III schools reported greater interaction with "house administrators". "House administrators" however, are not reported in Type II schools.
4. Type II schools reported greater interaction with department heads, another artifact. Type II schools generally retain department heads, but only the larger SWS's do so.

f. Conclusions

Size is the dominant factor with respect to observed differences among teacher interaction with school officials by types of schools. It should also be concluded, that teachers interact more frequently with their teacher peers than with either central administrators (principals and vice-principals) or secondary-administrators (department heads and "house administrators"). Their high frequency of interaction among peers is in no way related to size of school or to building type.

g. Differences by Building Design

The results of tests of sub-hypotheses I-F, I-G, I-H, I-J, I-I, I-K, and I-L by design of building are presented in Table D.14.

TABLE D.14

Frequency of Teacher Interaction With School Officials by Design of Building

Sub-Hypothesis	Object of Interaction	(Design Type) Compact I	 Campus II	F	Sign.
I-T-F	Principal	2.08	2.10	0.013	N.S.
I-T-G	Vice-Principal	2.02	2.03	0.001	N.S.
I-T-H	Counselor	2.38	2.36	0.026	N.S.
I-T-I	"House Administration"	0.26	0.79	14.631	.0005
I-T-J	Department Head	2.57	2.29	5.026	.0005
I-T-K	Teachers: Same Subject	3.26	3.30	0.060	N.S.
I-T-L	Teacher: Other Subject	2.89	2.91	0.013	N.S.

Source: Tables 35,36,37,38,39,40 and 41 of Appendix C.

h. Expectations

If size were the dominant factor in differences by building design, these results should be expected:

1. Interaction between teachers and central administrators should be moderate in both types.

2. No differences should be observed with respect to counselors or other teachers.

3. Significant differences should be reported with respect to secondary level administrators because these are distributed differently within the two design types.

i. Observations

No differences were observed with respect to central administrators, counselors or other teachers. Differences by design type for secondary level administrators were significant and in the predicted direction.

j. Conclusions

There is no relationship between design factors and the frequency of teacher interaction with school officials regardless of school size.

k. Differences by Building Utilization

The results of the tests of sub-hypotheses I-F, I-G, I-H, I-I, I-J, I-K, and I-L by school utilization patterns are presented in Table D.15.

TABLE D.15

Frequency of Teacher Interaction With School Officials by Building Utilization

Sub-Hypotheses	Object of Interaction	(Utilization Type) SWS	Subject	F	Sign.
I-T-F	Principal	1.88	2.24	9.906	.0005
I-T-G	Vice Principal	2.09	2.03	0.206	N.S.
I-T-H	Counselor	2.31	2.42	0.739	N.S.
I-T-I	"House Administrator"	1.04	0.23	39.732	.0005
I-T-J	Department Head	2.29	2.28	0.006	N.S.
I-T-K	Teacher: Same Subject	3.33	3.25	0.204	N.S.
I-T-L	Teacher: Other Subject	2.93	2.88	0.176	N.S.

Source: Tables 42,43,44,45,46,47 and 48 of Appendix C.

l. Expectations

If size of school dominated in accounting for variance in frequency of teacher-school official interaction by type of building utilization, these results would have been expected:

1. **Interaction with principals should be moderate and that with vice-principals high.**
2. **No differences in interaction with counselors or other teachers should be reported.**
3. **Differences should be reported for secondary-level administrators, since "house administrators" are employed primarily in the SWS type.**

m. Observations

The frequency of teacher interaction with principals was moderate to high in both utilization types, but significantly higher in the smaller subject-area buildings. Interaction with "house administrators" is higher in SWS schools as expected, and no differences were observed in other interactions.

n. Conclusions

Frequency of interaction between teachers and school officials is not significantly related to type of building utilization. In the two instances in which difference occured, size was the dominant fact in one and an artificat of personnel distribution in the other.

5. Summary of Results Concerning Frequency of Interaction

The results of the fifty-two sub-hypotheses related to frequency of student-official and teacher-official interaction are presented in abbreviated form in Table D.16. If differences which occured in the frequency of interaction between students and school officials or between teachers and school officials were significant at less than the .05 level, the null hypothesis was rejected. The letter "R" is used to signify that sub-hypothesis was rejected. The letter "A" is used to signify that the null hypothesis was accepted, that is to say: there were no significant differences in the frequencies of interaction.

TABLE D.16

Summary of Results of Sub-Hypotheses Related to Frequency of Interaction by All Building Type Factors

Sub-Hypothesis	Size of School	Building Type	Building Design	Utilization
Students				
I-S-T	R	R	A	R
I-S-A	R	R	R	A
I-S-B	R	R	R	R
I-S-C	R	R	R	R
I-S-D	A	R	R	A
I-S-E	R	R	A	R
Teachers				
I-T-F	R	R	A	R
I-T-G	R	A	A	A
I-T-H	A	A	A	A
I-T-I	R	R	R	R

I-T-J	R	R	R	A
I-T-K	A	A	A	A
I-T-L	A	A	A	A

Source: Tables 1-48 of Appendix C.

Of the 24 sub-hypotheses related to frequency of student interaction with school officials, four were accepted and 20 rejected.

Of the 20 sub-hypotheses related to frequency of teacher interaction with school officials, nine were accepted and 11 rejected. Of the 11 rejected, eight were demonstrated to be artifacts in sampling, hence have no relevance to the conclusions of the study.

From the results obtained, it seems clear that building factors are more closely related to the frequency of students' interaction with school officials than the frequency of teachers' interaction with school officials. It is also clear that other than building factors are related to frequency of interaction with school officials since the students and teachers--while occupying the same facilities--differ significantly in their levels of interaction with officials.

The eight sub-hypotheses related to frequency of teacher-teacher interaction were accepted, hence the building factors under study cannot be said to relate to peer interactions among teachers.

With these reservations in mind, the general null hypothesis must be rejected and the conclusion advanced that building type factors are in part related to frequency of interaction among school personnel.

It also seems clear that the factor, "size of school", is the dominant factor in the study in determining the frequency of student and teacher interactions with school officials. No single building factor other than size was significantly related to teacher interaction. However, it should be advanced that the frequency of student interaction with school officials can be (and probably is) modified by building factors other than size of school. Specifically, the factor of building utilization seems significantly and positively related to frequency of interaction in schools of moderate enrollment. The Type III (Campus: SWS) school is significantly and positively related to high interaction in moderate size schools. "Subject Area" plans of utilization are significantly but negatively related to frequency of interaction in small and moderate enrollment schools. It is also clear that the frequency of interaction in large schools is not influenced materially by type of building utilization. The factor of building design does not seem to be a critical determinant of interaction except in small schools where "Compact" design was positively related to high interaction. The sample of schools available for study in 1960, however, did not provide a fair test of the several possible effects of centralized and decentralized design patterns, hence generalizations concerning design and frequency of interaction are not warranted.

Remaining for further study are these unanswered questions:

1. **What are the relationships between interaction and SWS organization within large and small as opposed to schools with moderate levels of enrollment?**

2. **What are the relationships between interaction and design elements in schools of moderate and large enrollments when patterns of utilization are controlled?**

3. **Can the frequency of interaction in schools of moderate size, compact design and subject-area (Type II) be modified by altering the pattern of utilization to that of SWS?**

APPENDIX C

Reference Tables and Materials

For Use With Chapter 4

Student-Principal Interaction by Size of School

Frequency of Interaction	Size of School			
	Small	Medium	Large	Total
0	339	2075	3789	6203
1	134	338	407	879
2	39	90	103	232
3	16	45	43	104
4	10	25	15	50
Total	538	2573	4357	7467

Student-Vice Principal Interaction by Size of School

Frequency of Interaction	Size of School			
	Small	Medium	Large	Total
0	391	1713	3441	5545
1	76	579	632	1287
2	40	173	189	402
3	24	79	76	179
4	7	30	19	56
Total	538	2573	4357	7468

C.3

Student-Homeroom Teacher Interaction by Size of the School

Frequency of Interaction	Size of School			
	Small	Medium	Large	Total
0	199	738	1089	2026
1	109	620	1124	1853
2	75	403	703	1181
3	93	523	970	1586
4	62	290	471	823
Total	538	2574	4357	7469

C.4

Student-Counselor Interaction by Size of School

Frequency of Interaction	Size of School			
	Small	Medium	Large	Total
0	192	953	1685	2830
1	185	889	1555	2629
2	121	610	905	1636
3	35	84	177	296
4	5	38	35	78
Total	538	2574	4357	7469

C.5

Student-Librarian Interaction by Size of School

Frequency of Interaction	Small	Medium	Large	Total
0	299	1617	2937	4853
1	87	460	733	1280
2	71	297	430	798
3	62	149	193	404
4	19	47	62	128
Total	538	2570	4355	7463

C.6

Student-Principal Interaction by Type of School

Frequency of Interaction	(Type of School)					
	I	II	III	IV	V	Total
0	900	1409	1601	1688	605	6203
1	89	200	246	278	66	879
2	28	50	74	64	16	232
3	6	20	28	43	7	104
4	5	11	11	21	2	50
Total	1028	1690	1960	2094	696	7468

C.7

Student-Vice Principal Interaction by Type of School

Frequency of Interaction	(Type of School) I	II	III	IV	V	Total
0	865	1269	1285	1622	504	5545
1	112	271	456	317	131	1287
2	34	96	144	91	37	402
3	13	36	65	48	17	179
4	4	18	10	17	7	56
Total	1028	1690	1960	2095	696	7469

C.8

Student-Homeroom Teacher by Type of School

Frequency of Interaction	(Type of School) I	II	III	IV	V	Total
0	220	429	428	704	213	1994
1	265	412	330	592	156	1755
2	160	279	458	317	95	1309
3	253	388	284	329	158	1412
4	130	182	460	153	74	999
Total	1028	1690	1960	2095	696	7469

C.9

Student-Counselor by
Type of School

Frequency of Interaction	(Type of School) I	II	III	IV	V	Total
0	433	716	728	662	291	2830
1	387	594	656	752	240	2629
2	164	320	453	560	139	1136
3	36	46	98	98	18	296
4	8	14	25	23	8	78
Total	1028	1690	1960	2095	696	7469

C.10

Student-Librarian Interaction
Type of School

Frequency of Interaction	(Type of School) I	II	III	IV	V	Total
0	678	1061	1302	1324	488	4853
1	147	307	334	366	126	1280
2	102	209	203	229	55	798
3	66	94	86	141	17	404
4	35	19	35	35	10	134
Total	1028	1690	1960	2095	696	7469

C.11

Student-Principal Interaction by Design of School

Frequency of Interaction	Design Campus	Compact	Total
0	3804	2309	6203
1	590	289	879
2	154	78	232
3	78	26	104
4	34	16	50
Total	4750	2718	7468

C.12

Student-Vice Principal Interaction by Design of School

Frequency of Interaction	Design Campus	Compact	Total
0	3411	2134	5545
1	904	383	1287
2	272	130	402
3	130	49	179
4	34	22	56
Total	4751	2718	7469

C.13

Student-Homeroom Teacher Interaction by Design of School

Frequency of Interaction	Design		
	Campus	Compact	Total
0	1377	649	2026
1	1176	677	1853
2	742	439	1181
3	945	641	1586
4	511	311	822
Total	4751	2717	7468

C.14

Student-Counselor Interaction by Design of School

Frequency of Interaction	Design		
	Campus	Compact	Total
0	1681	1149	2830
1	1648	981	2629
2	1152	484	1636
3	214	82	296
4	55	22	77
Total	4750	2718	7468

C.15

Student-Librarian Interaction by Design of School

Frequency of Interaction	Design Campus	Compact	Total
0	3114	1739	4853
1	826	454	1280
2	487	311	798
3	244	160	404
4	75	51	126
Total	4746	2715	7461

C.16

Student-Principal Interaction Utilization of School

Frequency of Interaction	Utilization School-Within-School	Subject	Total
0	3106	3097	6203
1	401	478	879
2	118	114	232
3	41	63	104
4	18	32	50
Total	3684	3784	7468

C.17

Student-Vice-President Interaction by Utilization of School

Frequency of Interaction	Utilization School-Within-School	Subject	Total
0	2654	2891	5545
1	699	588	1287
2	215	187	402
3	95	84	179
4	21	35	56
Total	3684	3785	7469

C.18

Student-Homeroom Teacher Interaction by Utilization of School

Frequency of Interaction	Utilization School-Within-School	Subject	Total
0	893	1133	2026
1	849	1004	1853
2	585	596	1181
3	869	717	1586
4	487	335	822
Total	3684	3785	7469

C.19

Student-Counselor Interaction by Utilization of School

	Utilization		
Frequency of Interaction	School-Within-School	Subject	Total
0	1452	1378	2830
1	1283	1346	2629
2	756	880	1636
3	152	144	296
4	41	36	77
Total	3684	3784	7468

C.20

Student-Librarian Interaction by Utilization of School

	Utilization		
Frequency of Interaction	School-Within-School	Subject	Total
0	2468	2385	4853
1	607	673	1280
2	360	438	798
3	169	235	404
4	75	51	126
X	4	2	6
Total	3684	3785	7469

C.21

Teacher-Principal Interaction by Size of School

	(Size of School)			
Frequency of Interaction	Small	Medium	Large	Totals
0	18	133	215	366
1	25	178	255	458
2	40	103	124	267
3-4	21	35	27	83
Totals	104	449	621	1174

C.22

Teacher-Vice Principal Interaction by Size of School

	(Size of School)			
Frequency of Interaction	Small	Medium	Large	Totals
0	21	97	147	265
1	14	164	249	427
2	15	110	173	298
3-4	54	86	59	199
Totals	104	457	628	1189

C.23

Teacher-Counselor Interaction by Size of School

		(Size of School)		
Frequency of Interaction	Small	Medium	Large	Totals
0	14	74	123	211
1	30	133	187	350
2	45	173	233	451
3-4	13	63	56	132
Total	102	443	599	1144

C.24

Teacher-House Administrator Interaction by Size of School

		(Size of School)		
Frequency of Interaction	Small	Medium	Large	Totals
0	97	290	475	862
1	5	67	56	128
2	1	22	46	69
3-4	1	77	49	127
Total	104	456	626	1186

C.25

Teacher-Department Head Interaction by Size of School

Frequency of Interaction	(Size of School) Small	Medium	Large	Totals
0	4	43	50	97
1	9	60	112	181
2	11	135	213	359
3	12	68	117	197
4	7	38	34	79
5	61	113	102	276
Total	104	457	628	1189

C.26

Teacher-Teacher (same subject) Interaction by Size of School

Frequency of Interaction	(Size of School) Small	Medium	Large	Totals
0	7	17	23	47
1	11	51	69	131
2	18	116	189	323
3	38	156	215	409
4	16	87	96	199
5	14	30	36	80
Totals	104	457	628	1189

C.27

Teacher-Teacher (another subject) Interaction by Size of School

	(Size of School)			
Frequency of Interaction	Small	Medium	Large	Totals
0	16	34	65	115
1	20	117	171	308
2	30	130	204	364
3	27	125	147	299
4	11	42	34	87
Total	104	448	621	1173

C.28

Teacher-Principal Interaction by Type of School

Frequency of Interaction	I	II	III	IV	V	Total
0	59	72	100	88	47	366
1	53	109	120	130	46	458
2	25	65	52	99	26	267
3-4	5	25	9	39	5	83
Total	142	271	281	356	124	1174

C.29

Teacher-Vice-Principal Interaction by Type of School

Frequency of Interaction	I	II	III	IV	V	Total
0	45	65	61	61	33	265
1	53	96	111	121	46	427
2	34	76	80	83	25	298
3-4	6	20	22	38	11	97
5	6	16	9	60	11	102
Total	144	273	283	363	126	1189

C.30

Teacher-Counselor Interaction by Type of School

Frequency of Interaction	I	II	III	IV	V	Total
0	26	55	54	50	26	211
1	44	72	78	111	45	350
2	49	106	109	144	43	451
3-4	19	33	30	43	7	132
5	6	7	12	15	5	45
Total	144	273	283	363	126	1189

C.31

Teacher-House Administrator Interaction by Type of School

Frequency of Interaction	I	II	III	IV	V	Total
0	10	39	43	23	13	128
1	4	10	31	11	13	69
2-4	4	5	86	7	25	127
5	126	218	122	322	74	862
Total	144	272	282	363	125	1186

C.32

Teacher-Department Head Interaction by Type of School

Frequency of Interaction	I	II	III	IV	V	Total
0	7	24	35	19	12	97
1	21	38	51	48	23	181
2	51	83	90	101	34	359
3	35	51	30	61	20	197
4	14	21	11	26	7	79
5	16	56	66	108	30	276
Total	144	273	283	363	126	1189

C.33

Teacher-Teacher (another subject) Interaction by
Type of School

Frequency of Interaction	I	II	III	IV	V	Total
0	10	32	28	35	10	115
1	30	76	81	88	33	308
2	52	89	81	108	34	364
3	35	60	68	100	36	299
4	15	15	19	26	12	87
5	2	1	6	6	1	16
Total	144	273	283	363	126	1189

C.34

Teacher-Teacher (same subject) Interaction by
Type of School

Frequency of Interaction	I	II	III	IV	V	Total
0	7	16	12	9	3	47
1	10	29	41	34	17	131
2	38	80	87	92	26	323
3	51	84	93	143	38	409
4	28	45	40	54	32	199
5	10	19	10	31	10	80
Total	144	273	283	363	126	1189

C.35

Teacher-Principal Interaction
Design of School

Frequency of Interaction	Design Campus	Compact	Total
0	131	235	366
1	162	296	458
2	90	177	267
3-4	30	53	83
Total	413	761	1174

C.36

Teacher-Vice Principal Interaction by
Design of School

Frequency of Interaction	Design Campus	Compact	Total
0	110	155	265
1	149	278	427
2	110	188	298
3	24	63	87
4	2	8	10
5	22	80	102
Total	417	772	1189

C.37

Teacher-Counselor Interaction by Design of School

	Design		
Frequency of Interaction	Campus	Compact	Total
0	81	130	211
1	116	234	350
2	155	296	451
3	45	64	109
4	7	16	23
5	13	32	45
Total	417	772	1189

C.38

Teacher-House Administrator Interaction by Design of School

	Design		
Frequency of Interaction	Campus	Compact	Total
0	49	79	128
1	14	55	69
2	7	73	80
3-4	2	45	47
5	344	518	862
Total	416	770	1186

C.39

Teacher-Department Head Interaction by Design of School

Frequency of Interaction	Design Campus	 Compact	 Total
0	31	66	97
1	59	122	181
2	134	225	359
3	86	111	197
4	35	44	79
5	72	203	275
Total	417	771	1188

C.40

Teacher-Teacher (same subject) Interaction by Design of School

Frequency of Interaction	Design Campus	 Compact	 Total
0	23	24	47
1	39	92	131
2	118	205	323
3	135	274	409
4	73	126	199
5	29	51	80
Total	417	772	1189

C.41

Teacher-Teacher (different subject) Interaction by Design of School

Frequency of Interaction	Design Campus	 Compact	 Total
0	42	73	115
1	106	202	308
2	141	223	364
3	95	204	299
4	30	57	87
5	3	13	16
Total	417	772	1189

C.42

Teacher-Principal Interaction by Utilization of School

Frequency of Inteaction	Utilization School-Within-School	 Subject	 Total
0	206	160	366
1	219	239	458
2	103	164	267
3-4	19	64	83
5	6	6	12
Total	553	633	1186

C.43

Teacher-Vice-Principal Interaction by Utilization of School

Frequency of Interaction	Utilization School-Within-School	Subject	Total
0	139	126	265
1	210	217	427
2	139	159	298
3	39	58	97
4	5	5	10
5	26	76	102
Total	553	636	1189

C.44

Teacher-Counselor Interaction by Utilization of School

Frequency of Interaction	Utilization School-Within-School	Subject	Total
0	106	105	211
1	167	183	350
2	201	250	451
3	45	64	109
4	11	12	23
5	23	22	45
Total	553	636	1189

C.45

Teacher-House Administrator Interaction by Utilization of School

	Utilization		
Frequency of Interaction	School-Within-School	Subject	Total
0	66	62	128
1	48	21	69
2	71	9	80
3-4	44	3	47
5	322	540	862
Total	551	635	1186

C.46

Teacher-Department Head Interaction by Utilization of School

	Utilization		
Frequency of Interaction	School-Within-School	Subject	Total
0	54	43	97
1	95	86	181
2	175	184	359
3	85	112	197
4	32	47	79
5	112	164	276
Total	553	636	1189

C.47

Teacher-Teacher (same subject) Interaction by Utilization of School

	Utilization		
Frequency of Interaction	School-Within-School	Subject	Total
0	22	25	47
1	68	63	131
2	151	172	323
3	182	227	409
4	100	99	199
5	30	50	80
Total	553	636	1189

C.48

Teacher-Teacher (different subject) Interaction by Utilization of School

	Utilization		
Frequency of Interaction	School-Within-School	Subject	Total
0	48	67	115
1	144	164	308
2	167	197	364
3	139	160	299
4	46	41	81
5	9	7	16
Total	553	636	1189

Chapter 5

RESULTS OF STUDY: TYPES OF INTERACTION PATTERNS

In Chapter 5, data are presented which describe certain presumably significant relationships among school personnel. These are: (a) friendship patterns and (b) leadership patterns. Five patterns of relationships are described. These are:

1. The number of teachers within each school identified as teachers' "good friends";
2. The number of students within each school identified as students' "good friends";
3. The socio-economic class of students' "good friends";
4. The sex and grade level of student leaders, and
5. The accuracy of knowledge of students of their school leaders.

The data were examined by building types and, when appropriate, sub-hypotheses were tested.

1. Teacher Friendship Patterns

It was assumed that the school--if it was a significant social institution for teachers--would be a major source of their friendship relationships. The question was raised: Do schools vary by building types in their significance as sources of teachers' friends?

This general null hypothesis was tested:

Hypothesis II-T-I: There is no relationship between school building types and the number of "good friends" among the school staff reported by teachers.

The sample of 1189 teachers named 7664 teachers of the school staffs to be "good friends". This represented an average (mean) of 6.45 in-school friends per teacher. The median number of friends reported was nine. Consequently the responses by building types were compared in terms of their distribution above and below the median number of friends reported.

Four sub-hypothesis were then examined. These were:

Hypothesis II-T-2: There is no relationship between size of school and number of "good friends" among the school staff reported by teachers.

Hypothesis II-T-3: There is no relationship between type of building and the number of "good friends" among the school staff reported by teachers.

Hypothesis II-T-4: There is no relationship between design of building and the number of "good friends" among the school staff reported by teachers.

Hypothesis II-T-5: There is no relationship between plan of building utilization and the number of "good friends" among the school staff reported by teachers.

Results presented in Table E.1 indicated that teachers in large schools reported a greater average number of "good friends" than those in schools of medium or small enrollments.

TABLE E.1

Number of Teachers' Good Friends by Size of School

Hypothesis II-T-1

Number of Friends Per Teacher	Size of School Small	Medium	Large	Total
Less than nine	60	222	254	536
Nine or more	44	235	374	653
Total	104	457	628	1189

$X^2 = 14.4598$ d.f.: 2 $p < .01$

This result was predictable inasmuch as the total number of teachers in small schools was less than in large schools hence the opportunity to form numerous friendships among teachers was also less.

On the basis of size alone, these reports by building type would have been expected:

(1) The large Type I schools should have reported a greater number of friends per teacher;

(2) Types II and III schools should have reported a similar number of friends per teacher;

(3) The small type IV schools should have reported the least average number of friends per teacher.

(4) No differences should be anticipated by design of building however, if differences were reported, teachers in "compact" schools (larger schools) should have reported a greater average number of friends than teachers in "campus" schools.

(5) Teachers in the larger SWS schools should have reported a greater average number of friends than those in the smaller "Subject Area" schools.

Anticipated and actual results are symbolized in Table E.2, where "M" means, "more friends than expected", and "F" is, "fewer friends than expected".

TABLE E.2

Summary of Anticipated and Actual Distribution of Teachers' Friends by Building Types

	Hypothesis II-T-2 Type of Building					Hypothesis II-T-3 Building Design		Hypothesis II-T-4 Building Utilization	
	I	II	III	IV	V	Compact	Campus	SWS	Subject
Expected	M	-	-	F	-	M	F	M	F
Actual	M	M	-	-	-	M	F	-	-

Source: Tables 2,3 and 4 of Appendix D.

The results actually reported by teachers differed among the schools by type and by design. However, the differences generally conformed to those anticipated from differences among the schools by size of enrollment. The reports from the large Type I and the small Type IV schools and from the larger "compact" and the smaller "campus" schools were consistent with those anticipated from the factor of school size alone. One exception, however, was noticed: teachers in Type II schools reported a greater average number of friends than those in Type III schools even though the types of schools were of equal size.

However, the Type II schools are Compact schools and as such were expected to have reported more friends than the Campus schools of Type III. Consequently, the exception did not seem to be a valid one, the difference being accounted for by the factor of building design. Since differences by building design were accounted for by the factor of size of school, Hypothesis II-T-4 also was accepted. No differences were reported by plan of building utilization, hence Hypothesis II-T-5 was accepted. Size of school was the only factor demonstrated to be related to the number of in-school friends of teachers and, as indicated previously, the difference was probably caused by an artifact, namely: the limited opportunity for teachers in small schools to acquire as many in-school friends as those in large schools. Hence, the general null Hypothesis, II-T-1, was accepted.

2. Student Friendship Patterns

The number of "good friends" reported by students was examined in a manner similar to that for analyzing teachers responses. The general null hypothesis was:

Hypothesis II-S-1: There is no relationship between building types and number of "good friends" within the school reported by students.

Of the 7968 students in the sample, 7796 or 98.8 per cent provided information on this question. The 7796 students identified 50,696 persons or approximately 6.5 good friends per student, a figure equal that reported by teachers. The median number of students'friends, however, was eight--one less than that reported by teachers--hence the analysis of students' friends by building types was made on the basis of those reporting (a) less than eight friends per students and (b) eight friends or more per student.

Four sub-hypothesis were tested. These were:

Hypothesis II-S-2: There is no relationship between size of school and the number of "good friends" within the school reported by students.

Hypothesis II-S-3: There is no relationship between type of building and the number of "good friends" within the school reported by students.

Hypothesis II-S-4: There is no relationship between building design and the number of "good friends" within the school reported by students.

Hypothesis II-S-5: There is no relationship between plan of building utilization and the number of "good friends" within the school reported by students.

Results of the Chi square tests by size of school are presented in Table E.3.

TABLE E.3

Number of Students' Friends by Size of School

Hypothesis II-S-2

Average Number of Friends	Size of School			
	Small	Medium	Large	Total
Less than eight	225	1242	2346	3813
Eight or more	355	1457	2171	3983
Total	580	2699	4517	7796

X^2: 50.9966 d.f. 2 $p < .01$

It is clear from Table E.3 that significantly more students than expected reported "fewer than eight friends" in large schools and that a greater number of students than expected reported "eight or more friends" in small schools. This was precisely the opposite pattern reported in Table E.1 for teachers. To the extent that this was an adequate measure of "significance of school ' for teachers and students, the small school appeared to play a greater role in the choice of students' best friends than in the choice of teachers' best friends. Conversely, large schools s seemed to plan a more significant role in the choice of teachers' best friends than for choice of students' best friends.

Using size of school as the basis for predicting responses of students according to size-related building factors, the distribution of anticipated responses by size was determined. These were:

(1) Fewer friends than expected would be reported among students of the larger Type I, Compact and SWS schools.

(2) More friends than expected would reported by students of the smaller Type IV, Campus and Subject area schools.

(3) No differences should be reported between Type II and Type III schools although both should report fewer friends than the Type IV school.

The anticipated and observed results are symbolized in Table E.4 where "M" means "more friends than expected" and "F" means "fewer friends than expected."

TABLE E.4

Summary of Anticipated and Actual Numbers of Students' Friends by Building Types

	Hypothesis II-S-3 Type of Building					Hypothesis II-S-4 Building Design		Hypothesis II-S-5 Building Utilization	
	I	II	III	IV	V	Compact	Campus	SWS	Subject
Anticipated	F	-	-	M	-	F	M	F	M
Observed	F	-	M	-	F	-	M	-	-

Source: Tables 4,5 and 6 of Appendix D.

It is clear from the results summarized in Table E.4 above that size of school accounted for most of the apparent differences among the schools by building types. Observations by both design and utilization factors were as predicted, as were those of the Type I, Type IV and Type V schools; hence hypotheses II-S-4 and II-S-5 were accepted. The exception was that of the Type II-school which--although equal in size to the Type II and larger the Type IV school--reported a greater number of students' friends than the Type II or Type IV schools. In this respect, the Type III school more nearly resembled the small school than the large school, hence hypothesis II-S-1 was rejected.

3. Socio-economic Levels of Students' Best Friend

In Hypothesis II-S-1 above, it was established that students vary in the number of best friends chosen among other students in accordance with school size and type.

The question was examined: do students also vary in their choices of best friends by socio-economic level? That is, do students of one socio-economic class choose their best friends more frequently from their own socio-economic class or from those classes above or below that of their own?

It was hypothesized that:

Hypothesis II-S-6: There is no relationship between building types and the incidence of cross-class choices of students' best friends.

Four sub-hypotheses were examined in order to test the general null hypothesis. These were:

Hypothesis II-S-7: There is no relationship between size of school and the incidence of cross-class choices of students' best friends.

Hypothesis II-S-8: There is no relationship between type of building and the incidence of cross-class choices of students' best friends.

Hypothesis II-S-9: There is no relationship between building design and the incidence of cross-class choices of students' best friends.

Hypothesis II-3-10: There is no relationship between plan of building utilization and the incidence of cross class-choices of students' best friends.

The data were first examined by size of school. The results presented in Table E.5 indicated that:

(1) Students of small schools, to a degree significantly more than expected, choose best friends from the same or lower socio-economic classes than their own;

(2) Students of large schools split into two distinct groups: one group in which most students choose friends from a socio-economic group higher than that of their own, another group from the same or lower socio-economic classes.

(3) Greater numbers of students than expected from medium size schools choose friends from their own socio-economic class.

TABLE E.5

Number of Cross-Class Choice of Students' Best Friends by Size of School

Size of School	Socio-economic Level of Chosen Best Friend					
	Lower		Same		Higher	
	Obs.	Expected	Obs.	Expected	Obs.	Expected
Small	131	(122.8)	151	(117.9)	93	(134.3)
Medium	503	(575.6)	703	(552.7)	552	(629.7)
Large	779	(714.7)	503	(686.3)	901	(782.0)

X^2 : 110.942 d.f.: 4 p $<$ .001

The differences between observed and expected results by Chi square test among chosen best friends by size of school are more clearly indicated in Table E.6 in which the larger differences between observed and expected results are symbolized by the letters "M" and "F". "M" means: "more students than expected chose a friend in this socio-economic class"; "F" means: "Fewer students than expected chose friends in this socio-economic class".

TABLE E.6

Symbolized Cross-Class Choices of Students' Best Friends by Size of School

Socio-economic Level of Chosen Best Friend

Size of School	Lower	Same	Higher	Trend of Choices
Small	M	M	F	Downward
Medium	F	M	F	Static
Large	M	F	M	Bi-polar

Source: Table E.5.

It should be clear that the students in small schools choose fewer friends from a socio-economic class higher than that of their own, and more from the same or lower classes. This trend of choices was called, "downward". Students in medium size schools chose friends predominantly from their own class, hence the trend of choices appeared to be static. Students in large schools chose friends from opposing classes, that is from either the class above or class below that of their own, hence the trend of choices was called, "bi-polar".

The responses of students by size of school were then used to predict choices of friends by other size-related factors. The results anticipated were:

(1) Students in the larger, Type I Compact and SWS schools would be expected to choose best friends from a socio-economic class above or below that of their own (i.e."bi-polar').

(2) Students of the smaller, Type IV, Campus and Subject-Area schools would be expected to choose their best friends from the same or lower socio-economic class (i.e. "downward").

(3) Students in Type II and Type III schools would not be expected to differ in their cross-class choices and both would be expected to choose predominantly from their own socio-economic class. The pattern of predicted responses is given in Table E.7.

TABLE E.7

Pattern of Responses Predicted From Factor of Size of School for other Size-Related Building Factors.

Socio-economic Class Choice	Type of Building I	II	III	IV	V	Building Design Compact	Campus	Building Utilization SWS	Subject
Lower	(m)	(m)	(m)	(m)	(f)	(f)	(m)	(m)	(f)
Same	(f)	(-)	(f)	M	(f)	(f)	(-)	(f)	(m)
Higher	M	(m)	F	F	M	(m)	(f)	(f)	(m)

Source: Tables 7,8 and 9 of Appendix F.

Differences by Chi square by type of building were significant at the .05 level. Those by design of building and by plan of building utilization were not found to be significant.

These observations were made:

(1) The large Type I schools followed expectations by size, i.e., students generally chose from a socio-economic class above (significant) or below (direction was indicative) that of their own.

(2) Students in the small Type IV schools also followed expectations by size, i.e., students generally chose from a socio-economic class equal to (significant) or less than (significant) their own.

(3) Students in the Type II and Type III schools, contrary to expectation, differed in their choices; those in the Type II schools generally following the "bi-polar" trend of the large school (direction was indicative) and those in the Type III school followed the "downward" trend (significant) of the small schools. These differences were significant even though the two types of schools were similar in enrollments and the Type III schools were generally larger than the Type IV schools.

(4) It was also observed that the Type V school students were generally "upward" in their trend of choices of friends, a situation not anticipated in the analysis by size of school.

It must be concluded therefore, that the populations of students did vary in their cross-class choices of friends, by size of school and by type of building. The general null hypothesis, therefore, was rejected, although sub-hypotheses II-S-9 and II-S-10 were accepted.

4. Pattern of Student Leadership

Following analysis of friendship patterns among the thirty-four schools, an attempt was made to estimate (1) the actual structure of student leadership within the schools and (2) the degree to which students generally were knowledgeable of their leaders.

As described fully in Section B, students were asked to name the student whom they believed to be an "outstanding leader" in their school. They were also asked to identify that student by sex and by grade of school in which he was enrolled.

The 7968 students named 5151 different persons as "outstanding student leaders". Of the 5151 different students so named, 1420 were named by at least two students. These students were labelled "actual leaders" inasmuch as there was some significant degree of agreement[1] among the students that these persons were in fact "outstanding leaders". The pool of 5151 other students identified only once as "outstanding leaders" were labelled, "perceived leaders". Two analyses were made. These were:

(1) A comparison of the distribution of "actual leaders" by building types, and
(2) A comparison by building types between the distribution of "actual leaders" and "perceived leaders".

The difference between the distributions of "actual" and "perceived" leaders was interpreted to be a measure of the accuracy with which students were aware of the actual structure of student leadership within their schools. For example, if there was agreement between the number of "actual" and "perceived" leaders reported within a type of school, it was interpreted that students generally were aware of whom their leaders were, a fair measure of the efficacy of in-school student interaction.

A. Distribution of Student Leaders

Two characteristics of student leaders were examined: (1) sex and (2) school grade level.

(1) Sex of Student Leaders

It was first hypothesized that:

Hypothesis II-S-11: There is no relationship between building types and sex of student leaders.

Four sub-hypotheses were examined as a means of testing the general null hypothesis. These were:

Hypothesis II-S-12: There is no relationship between size of school and the sex of student leaders.

Hypothesis II-S-13: There is no relationship between type of building and the sex of the student leaders.

Hypothesis II-S-14: There is no relationship between building design and the sex of student leaders.

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[1] Since the student sample represented approximately one-fifth of the student bodies of the 34 schools, to be named as an "outstanding leader" by at least two students in the sample was roughly equivalent to being named by ten or more different students of the entire student body, a fair measure of agreement as to actual student leaders.

The distribution by sex was found to be 759 boys and 677 girls among those who had been identified by two or more persons to be "outstanding leaders". However, when the sub-hypotheses were tested by Chi square, in each case, they were found to be not significant at the .05 level. In other words, the proportion of actual male leaders remained essentially the same regardless of building types.

The results of the Chi square tests are presented in Tables 10,11,12 and 13 of Appendix D. It was concluded, therefore, that the sex of student leaders was not related to building types, hence the four sub-hypotheses and the general null hypothesis were accepted.

It was also hypothesized that:

Hypothesis II-S-16: There is no relationship between building types and the accuracy of students' knowledge of the sex of student leaders.

Four sub-hypotheses were tested as a means of examining the general null hypothesis. These were:

Hypothesis II-S-17: There is no relationship between size of school and the accuracy of students' knowledge of the sex of student leaders.

Hypothesis II-S-18: There is no relationship between type of building and the accuracy of students' knowledge of the sex of student leaders.

Hypothesis II-S-19: There is no relationship between building design and the accuracy of students' knowledge of the sex of student leaders.

Hypothesis II-S-20: There is no relationship between plan of building utilization and the accuracy of students' knowledge of the sex of student leaders

To test these sub-hypotheses, the distribution of 'perceived" leaders was compared to that of "actual" leaders for each building type. The results of these tests by size of school are presented in Table E.8 .

TABLE E.8

Distribution by Sex of "Actual" and "Perceived" Student Leaders by Size of School

Size of School	Sex	Number of Actual Leaders	Ratio	Number of Perceived Leaders	Ratio	Chi square
Small	Boys	88	4:3	194	4:3	1.7592 N.S.
	Girls	64		154		
Medium	Boys	278	4:3	1343	3:1	53.9863 .001
	Girls	219		474		
Large	Boys	393	1:1	2225	3:1	139.6988 .001
	Girls	378		766		

Differences among schools by size were apparent. In large schools where the ratio of actual male to female leaders was approximately 1:1, the distribution of perceived leaders was nearly 3:1 in favor of boys. In other words, students in large schools perceived that there were approximately three times as many "outstanding leaders" among boys than girls, while the actual structure consisted approximately equally of boys and girls. Hence, students in large schools may be seen to be inaccurate in their knowledge of their leaders. Similarly, students in schools of medium enrollment were inaccurate in the perceptions of outstanding leaders. The actual distribution by sex was reported to be approximately 4:3 in favor of boys. The perceived distribution was almost 3:1, a sizeable and significant difference. Students in small schools, however, were essentially accurate in their perceptions of the sex of leaders. The actual distribution was reported to be about 4:3 in favor of boys. The perceived distribution was also about 4:3, the differences being neglible and not statistically significant. Therefore, it is concluded that there is a relationship between size of school and the accuracy of students' knowledge of the sex of student leaders; and specifically, that students in small schools are more accurate in their knowledge of their leaders. Hence, Hypothesis II-S-17 was rejected.

If size were the dominant factor in accounting for differences among schools by building type, these anticipated results would have been obtained when the student leadership data were examined by type of building and by building design and plan of building utilization.

(1) The students in the large Type I, Compact and SWS schools would generally have been inaccurate in their perception of the sex of student leaders.

(2) The students in the small Type IV schools would generally have been accurate in their perception of the sex of student leaders.

(3) Among those large schools in which students would be expected to be inaccurate in their perceptions of the sex of student leaders, it would also be expected that (a) Type I schools would be least accurate, (b) Types II and III equally and highly inaccurate, (c) Campus schools more accurate than Compact and (d) Subject Area Schools more accurate than large SWS schools.

Data were first examined by type of school. Results are summarized in Table E.10 in which it was observed that differences were reported among the schools by type.

TABLE E. 9

Distribution by Sex of "Actual" and "Perceived" Student Leaders by Type of School

Hyp. II-S-18

Type of School	Sex	Number of Actual Leaders	Ratio	Number of Perceived Leaders	Ratio	Chi square Test >	Signifcance
I	Boys	127	6:5	420	2:1	15.57492	.01
	Girls	107		188			
II	Boys	180	1:1	782	2:1	28.21434	.01
	Girls	172		383			
III	Boys	185	6:5	1122	7:2	73.39460	.01
	Girls	158		308			
IV	Boys	214	1:1	1163	9:2	133.56383	.01
	Girls	197		257			
V	Boys	53	5:4	265	1:1	0.44864	N.S.
	Girls	43		253			

As expected, students in the larger Type I, II and III schools were not accurate in their perceptions of the sex of student leaders. Students in the small Type IV buildings, contrary to expectation, were also inaccurate in their perceptions. Interestingly, students in the Type V (Campus: Grade Level) schools, despite relatively large size, were accurate in their perceptions.

Contrary to expectations, the Type I and Type II schools reported more accuracy than either the Type III or Type IV buildings. The common factor between the Type I and Type II and between the Type III and Type IV schools was building "compactness". Types I and II were "compact" buildings; Types III and IV were "campus" buildings. The fact that students in Types I and II buildings (although inaccurate in their perceptions) were more accurate than students in Types III and IV buildings suggested that building design was related directly to accuracy of students' perceptions. The Type V building (Campus: Grade Level) was an exception to all predictions--by size or by design--hence was viewed as being related directly to adequacy of students perceptions. The general null hypotheses, II-S-18, therefore, was rejected.

The data were then examined for differences by building design and the results summarized in Table E.10.

TABLE E.10

Distribution of Sex of "Actual" and "Perceived" Student Leaders by Building Design

Building Design	Sex	Number of Actual Leaders	Ratio	Number of Perceived Leaders	Ratio	Chi square	Sig.
Compact	Boys	307	6:5	1202	2:1	43.58034	.01
	Girls	279		571			
Campus	Boys	452	9:8	2295	4:1	217.12855	.01
	Girls	398		565			

It may be observed in Table E.10 that students in both Compact and Campus schools were inaccurate in their perception of the sex of student leaders. The Chi square test of differences were significant in each case at beyond the .01 level. It may also be observed, however, that--contrary to expectation--students in the larger, Compact schools were more accurate (less inaccurate) than were students in smaller, Campus schools, the ratio of difference being 2:1 in Compact schools while nearly 4:1 in Campus schools. On this basis, sub-hypothesis II-S-19 was rejected.

Four observations seem warranted at this time. These are:

(1) From tests of Hypothesis II-S-17, it was apparent that size of school made a difference in the accuracy of students' perceptions--students' perceptions being generally more accurate in small schools than in schools of medium or large enrollment.

(2) From tests of Hypothesis II-S-19, it was apparent that building design made a difference in students' perceptions--students generally reporting the sex of student leaders more accurately in Compact than in Campus schools.

(3) The factor of compactness was also apparent in the rest of Hypothesis II-S-18 in which it was observed that students in the large Type I schools (Compact) were generally more accurate in their perceptions than students in the small but Campus design Type IV school.

(4) From tests of Hypothesis II-S-19, it was also observed that students in Compact, Type II schools were generally more accurate than those in the same size, but Campus-design, Type III schools.

With respect to these observations, it seems clear that the factor of design was as important in accounting for differences in perceptions of students as was the factor of school size, and may actually have been dominant to the factor of size.

The data were reanalyzed in terms of plan of building utilization. Because the students of Type V (Campus: Grade Level) schools were observed to be exceptional in their accuracy of perception, the Type V schools were included in this analysis. The results are summarized in Table E.11.

TABLE E.11

Distribution of Sex of Actual and Perceived Student Leaders by Plan of Building Utilization

Hyp. II-S-20

Plan of Utilization	Sex	Number of Actual Leaders	Ratio	Number of Perceived Leaders	Ratio	Chi square	Significance
School-Within-School	Boys	312		1542			
	Girls	265	6:5	496	3:1	100.73427	.01
Subject-Area	Boys	394		1955			
	Girls	369	8:7	640	3:1	143.51329	.01
Grade Level	Boys	53		265			
	Girls	43	5:4	253	1:1	0.44864	N.S.

It is apparent from Table E.11 that students in SWS and Subject Area schools are inaccurate in their reports of the sex of student leaders. The differences between perceived and actual leaders suggest that the students of the two types were about equally inaccurate. For the thirty-one matched schools under study, the factor of building utilization cannot be seen to have made a difference in the accuracy of students' perceptions. However, in the Type V (Campus: Grade Level) schools, students were accurate in their perceptions of student leaders and this observation cannot be discounted. Therefore, Hypothesis II-S-20 was rejected with the reservation that further research would be needed for validation.

It seems clear, therefore, that students' perception of student leadership--and not the structure of student leadership itself--differs significantly by size, by type and by design of buildings. Students in large and in campus schools, regardless of plan of utilization, were generally less accurate in their reports of the sex of student leaders than were students in small and decentralized (campus) schools. However, students in the fairly large, Campus: Grade Level schools (Type V) were accurate in their reports of student leaders, hence it must also be concluded that Grade Level distribution--even in decentralized buildings and in schools of moderate enrollment--was a factor in heightening the accuracy of student perceptions in those schools.

(2) Grade Level of Student Leaders

The grade of school in which student leaders were enrolled was examined.

It was hypothesized that:

Hypothesis II-S-21: There is no relationship between building types and the distribution of student leaders by grade level.

Four sub-hypotheses were tested as a means of examining the general null hypothesis. These were:

Hypothesis II-S-22: There is no relationship between size of school and the distribution of student leaders by grade level.

Hypothesis II-S-23: There is no relationship between type of building and the distribution of student leaders by grade level.

Hypothesis II-S-24: There is no relationship between building design and the distribution of student leaders by grade level.

Hypothesis II-S-25: There is no relationship between plan of building utilization and the distribution of student leaders by grade level.

Chi square tests were made of the distributions. Differences among schools (a) by size of school and (b) by plan of building utilization were found to be not significant at the .05 level, hence hypotheses II-S-22 and II-S-25 were accepted. Data are reproduced in Tables 13 and 14 of Appendix D. Differences were found to be significant, however, among schools by type and by building design. In Table E.12, the distribution by building design is presented.

TABLE E.12

Distribution of Student Leaders by Grade Level
by Building Design
(Chi square Test)

Hyp. II-S-24

Grade level	Compact Obs'd.	Compact Expected	Campus Obs'd.	Campus Expected
9	93	(80)	101	(114)
10	122	(116)	160	(166)
11	146	(139)	193	(200)
12	224	(250)	384	(358)
Total	585		838	

X^2: 9.3769 d.f. 3 $p \leq .025$

As may be observed in Table E.12, most of the differences by building design occurred at grades 9 and 12. More student leaders than expected appeared at grade nine in Compact schools and fewer students than expected at grade 12. Among Campus schools, more student leaders appeared at grade 12 than expected and fewer at grade 9. For clarity, all differences are symbolized in Table E.14. It may be seen that the distribution of student leaders was more dispersed in Compact schools than in Campus schools; that is, greater numbers of leaders than expected appeared in more than one grade in Compact than in Campus schools. In Table E.13, "M" means "more student leaders than expected at this grade level" and "F" means "fewer leaders than expected."

TABLE E.13

Distribution of Student Leaders by Grade Level by Building Design

Hyp. II-S-24

Grade Level	Compact	Campus
9	M	F
10	M	F
11	M	F
12	F	M

Campus schools, it would appear, had proportionately more of their student leaders in Grade 12--hence, the interpretation might have been advanced: the concentrated structure of leadership in Campus schools is more visible to students and therefore more accurately perceived. This conclusion, however, cannot be justified because of conflicting data; that is:

(1) students in Compact schools were more accurate in their perception of student leaders than were students in Campus schools (although both were inaccurate), thus leading to the conclusion that the dispersed leadership pattern found in Compact schools was positively related to accuracy of student knowledge of leaders;

(2) students in the Type V (Campus: Grade Level) schools were accurate in their perceptions of student leaders, despite Campus design which leads to the opposite conclusion: that the pattern of concentrated leadership found in Campus schools was related to accuracy of students' knowledge of their leaders. The issue warrant further study through analysis by types of buildings.

The results of the Chi square tests by types of schools are presented in Table E.14, where "O" means "observed result" and "E" means "result expected if chance were the only factor accounting for observed differences."

TABLE E.14

Distribution by Grade Level of Student Leaders by Types of School

Hyp. II-S-23

Grade Level	Types of Schools I		II		III		IV		V	
	O	E	O	E	O	E	O	E	O	E
9	52	(32)	41	(48)	44	(45)	45	(56)	12	(13)
10	45	(46)	77	(70)	60	(66)	79	(81)	21	(19)
11	54	(56)	92	(84)	71	(79)	94	(98)	28	(23)
12	83	(100)	141	(150)	156	(141)	193	(176)	35	(41)

X^2 : 28.0440 d.f. 12 $p < .01$

The variances in Table E.14 are widely dispersed. Only four cells contain as much as ten per cent of the total variance. These are: 9-I, 9-IV, 12-IV and 12-V. Symbolizing the differences for clarity, the results are summarized in Table E.15 in which "M" means "more leaders than expected" and "F" means "fewer". Fractional difference are in parentheses.

TABLE E.15

Symbolized Differences in Grade Level Distribution of Student Leaders by Types of Buildings

Hyp. II-S-23

Grade Level	Building Type I	II	III	IV	V
9	M	(f)	(-)	L	(-)
10	(-)	(m)	(f)	(-)	(-)
11	(-)	(m)	(f)	(-)	(m)
12	(f)	(f)	(m)	M	L

The Table is read as follows:

In Type I schools more student leaders than expected were reported to be enrolled in grade 9. In Type II schools fewer students than expected (but not significantly fewer) were reported to be enrolled in grade nine. In Type III schools, approximately the same number (-) of leaders as expected were reported to be enrolled in grade 9.

It should be clear, therefore, that the student leadership was more concentrated in the Type I schools than expected (i.e. there were more student leaders than expected at grade 9 and the same number or fewer in other grades). Some concentration in grades 10 and 11 was reported in Type II schools and more concentration at grade 12 than expected in Type III schools. Leadership was clearly concentrated in the Type IV schools with many more than expected at grade 12 and fewer than expected at grade 9. Leadership seemed moderately dispersed in the Type V school, with less at grade 12 than expected but about expected numbers in the other three grades. In terms of dispersion of leadership by grades, therefore, the schools fell roughly into this order from greatest to least:

Type IV (Two significant cells)
Types I and V (One significant cell)
Types II and III (No significant cells)

If concentration of leadership in one grade, for example, were related inversely to accuracy of student's knowledge of leaders, the students of the Type IV schools would have been expected to be least accurate in their perceptions of leaders and the students of the Types II and III schools most accurate. As anticipated, students of Type IV schools were reported in Table E.10 to be least accurate, but contrariwise, students of the Types II and III schools--those with greatest dispersion of leadership--were inaccurate in their perceptions, those of Type II, however, being less inaccurate than the students of Type III.

Student leadership in Type V schools was not as dispersed as that of Compact schools, but not as concentrated as that of Campus schools. Yet, the Type V school was the only type in which students generally were accurate in their perceptions of student leadership. Hence, the specific relationships between the factors of (a) building design, (b) dispersion of leadership and (c) accuracy of perception could not be ascertained.

It must be concluded, therefore, that at least three factors had positive or negative effects upon accuracy of students' perceptions of leadership. These are: (a) size of school, (b) compactness of design and (c) dispersion of student leaders by grade level. These factors were not mutually exclusive: they could not be demonstrated to affect student perceptions independently one of the other. Building compactness and dispersion of student leaders by grade level were clearly linked; the leadership in Compact schools being much less concentrated at a single grade level than in Campus schools. Until further study is made, however, only these conclusions seem warranted:

(1) Accuracy of students' perceptions of student leadership was negatively affected by (a) large enrollments, (b) campus design of building and/or (c) concentration of leadership in a single grade.

(2) Accuracy of students' perceptions of student leadership was positively affected by (a) small enrollments, (b) compact design of building and/or (c) dispersion of student leadership in two or more grades.

Apart from these conclusions, the grade level plan of distribution of students still seemed to be a factor--independent of the factors of size, compactness of building and of leadership dispersion--in that it was the only building type in which students were generally accurate in their perceptions, yet it was characterized by negative building factors (moderately large enrollment, campus design) and contained only a moderately dispersed leadership structure.

5. Summary and Conclusions

In this section the results of five hypotheses concerning teacher personnel and twenty-five concerning students were presented. Of these 16 were accepted and 9 rejected at the .05 or lesser levels. The results are summarized in Table E.16 as follows:

TABLE E.16

Summary of Results by Hypotheses Concerning Types of Personnel Interactions

Hypothesis		Accepted	Rejected	Level of Significance
II-T-1	(General)	X		
II-T-2	(Size)		X	.01
II-T-3	(Type)	X		
II-T-4	(Design)	X		
II-T-5	(Util.)	X		
II-S-1	(General)		X	
II-S-2	(Size)		X	.01
II-S-3	(Type)		X	.01
II-S-4	(Design)	X		
II-S-5	(Util.)	X		
II-S-6	(General)		X	
II-S-7	(Size)		X	.001
II-S-8	(Type)		X	.05
II-S-9	(Design)	X		
II-S-10	(Util.)	X		
II-S-11	(General)	X		
II-S-12	(Size)	X		
II-S-13	(Type)	X		
II-S-14	(Design)	X		
II-S-15	(Util.)	X		
II-S-16	(General)		X	
II-S-17	(Size)		X	.001
II-S-18	(Type)		X	.01
II-S-19	(Design)		X	.01
II-S-20	(Util.)	X		
II-S-21	(General)		X	
II-S-22	(Size)	X		
II-S-23	(Type)		X	.01
II-S-24	(Design		X	.025
II-S-25	(Util.)	X		

It was concluded that:

(1) There was a relationship between building types and the number of "good friends" identified by teachers within the schools. Specifically, these relationships were established for the factors of (a) size of school and for (b) the Type III school.

(2) There was a relationship between building types and the number of "good friends" identified by students within the schools. Specifically, these were established for the factors of (a) the size of school and for (b) the Type III school.

(3) Large schools were more important sources of established friendships for teachers than for students and the Type III school represented a greater source of friendships for students than for teachers.

(4) There was a relationship between building types and the number of cross-class choices made by students in choosing their good friends. Specifically it was concluded that students in small schools generally choose friends from among those of the same or lower socio-economic class while students in large schools were polarized with respect to cross-class choices. Students in Type III schools generally followed the pattern established in small schools.

(5) The actual structure of student leadership (as measured by the distribution of leaders by sex) did not differ significantly by building types.

(6) The accuracy of student perceptions of the sex of their leaders varied by size of school, by design and by one type of building. In general, students in large and in Campus schools were less accurate in their perceptions than students in small and in Compact buildings. However, the plan of utilization entitled "Grade Level" (Type V) was found to be the only type in which students were accurate in their perceptions of student leaders.

(7) The factor of "dispersion" of leaders by grade level seemed to be related to the accuracy of students' knowledge of their leaders along with the factors of size and compactness of the school.

(8) In general, three major building factors seemed to be related to the accuracy of students' knowledge of student leaders. These were not demonstrated to be mutually exclusively. They were:

Negatively related:	Positively related:
Large enrollment	Small enrollment
Campus design	Compact design
Concentrated leadership structure	Dispersed leadership structure

(9) The factors of (a) building design and (b) dispersion of leadership by grade level were linked, hence it was not possible to determine independently within the sample schools the relationships of (a) design and students' perceptions and of (b) leadership dispersion and students' perceptions. Neither was it possible to determine the specific relationships between design and leadership dispersion, i.e. to determine if the structure of student leadership is modifiable by building design.

APPENDIX D

Reference Tables and Materials

For Use With
Chapter 5

TABLE 1

Number of Good Friends of Teachers by Type of School

Number of Friends Per Teacher	Type of Building I	II	III	IV	V	Total
Under nine	58	103	135	177	63	536
Nine or more	86	170	148	186	63	653
Total	144	273	283	363	126	1189

X^2 = 11.64899 d.f. = 4 $p < .025$

TABLE 2

Number of Good Friends of Teachers by Building Design

Number of Friends Per Teacher	Design of Building Compact	Campus	Total
Under nine	161	375	536
Nine or more	256	397	653
Total	417	772	1189

X^2 = 11.15587 d.f. = 1 $p < .005$

D.3

TABLE 3

Number of Good Friends of Teachers by Plan of Building Utilization

Number of Friends Per Teacher	Plan of Building Utilization SWS	Subject	Total
Under nine	256	280	536
Nine or more	297	356	653
Total	553	636	1189

$X^2 = 0.66902$ d.f. = 1 $P > .05$

Not significant

D.4

TABLE 4

Number of Good Friends of Students by Type of Building

Number of Friends Per Student	Type of Building I	II	III	IV	V	Total
Under eight	615	881	855	1033	429	3813
Eight or more	437	969	1209	1108	260	3983
Total	1052	1850	2064	2141	689	7796

$X^2 = 136.55415$ d.f. = 4 $p < .005$

TABLE 5

Number of Good Friends of Students by Building Design

Number of Friends Per Student	Building Design Compact	 Campus	 Total
Under eight	1496	2317	3813
Eight or more	1406	2577	3983
Total	2902	4894	7796

$\chi^2 = 13.03979$ d.f. = 1 $p < .005$

D.6

TABLE 6

Number of Good Friends of Students by Plan of Building Utilization

Number of Friends Per Student	Plan of Building Utilization SWS	 Subject	 Total
Under eight	1899	1914	3813
Eight or more	1906	2077	3983
Total	3805	3991	7796

$\chi^2 = 2.96767$ d.f. = 1 $p > .05$

Not Significant

D.7

TABLE 7

Number of Cross Class Choices of Friends by Type of Building

Type of Building	Chose Below	Chose Same	Chose Above	Total
I	191	303	237	731
II	356	587	420	1363
III	434	629	413	1476
IV	444	714	435	1593
V	123	204	176	503
Total	1548	2437	1681	5666

$X^2 = 19.215$ d.f. 8 $P < .025$

D.8

TABLE 8

Number of Cross Class Choices of Friends by Building Design

Building Design	Chose Below	Chose Same	Chose Above	Total
Compact	547	890	657	2094
Campus	1001	1547	1024	3572
Total	1548	2437	1681	5666

$X^2 = 2.803$ d.f. 2 $p > .05$

Not significant

TABLE 9

Number of Cross Class Choices of Friends by Plan of Building Utilization

Plan of Building Utilization	Chose Below	Chose Same	Chose Above	Total
SWS	625	932	650	2507
Subject	800	1301	855	2956
Total	1425	2233	1505	5463

$X^2 = 0.9960$ d.f. 2 $P > .05$

Not significant

TABLE 10

Sex	Building Type I	II	III	IV	V	Total
Male	127	180	185	214	53	759
Female	107	172	158	197	43	677
Total	234	352	343	411	96	1436

$X^2 = 1.09223$ d.f. 4 $p. > .05$

Not significant

D.11

TABLE 11

Sex of Student Leaders by Building Design

Sex	Building Design		
	Compact	Campus	Total
Male	307	452	759
Female	279	398	677
Total	586	850	1436

$X^2 = 0.0558$ d.f. = 1 $p > .05$

Not significant

D.12

TABLE 12

Sex of Student Leaders by Plan of Building Utilization

Sex	Plan of Building Utilization		
	SWS	Subject	Total
Male	365	394	759
Female	308	369	677
Total	673	763	1436

$X^2 = 0.8689$ d.f. = 1 $p > .05$

Not significant

TABLE 13

Grade Level of Student Leaders by Size of School

Grade Level	Small	Size of School Medium	Large	Total
9	29	73	95	197
10	28	111	154	293
11	37	113	189	339
12	77	198	333	608
Total	171	495	771	1437

$X^2 = 6.9718$ d.f. = 6 $p > .05$

Not significant

TABLE 14

Grade Level of Student Leaders by Plan of Building Utilization

Grade Level	Plan of Building Utilization SWS	Subject	Total
9	96	99	195
10	105	156	261
11	125	186	311
12	239	334	573
Total	565	775	1340

$X^2 = 4.8200$ d.f. = 3 $p > .05$

Chapter 6

PROBLEMS PERCEIVED BY SCHOOL PERSONNEL AND THE SOURCES OF HELP ON PERSONNEL PROBLEMS

In this chapter, two aspects of interaction are examined, namely: the type and diversity of inter-personnel problems reported by school personnel, and the characteristic sources to which school personnel turn for help on these problems.

1. Types and Diversity of Personnel Problems

Students and teachers of the sample of 34 schools were asked this question:

> "What do you believe are the three chief or major problems which (students) (teachers) have in school?"

Responses were codified and the coding tested for reliability.[1] The codified information was employed to answer these two basic questions:

a. Do (students) (teachers) differ in the types of problems they perceive in their schools?

b. Do (students) (teachers) of different types of schools report differently concerning four types of personnel problems, namely:

1. personal problems,
2. instructional problems,
3. administrative problems and
4. relational problems?

Four general hypotheses were constructed and tested as a means of answering the basic questions.

A. Diversity of Teacher Problems

It was hypothesized that:

Hypothesis III-T-1: There is no relationship between the diversity of problems reported by teachers and building type factors.

Four sub-hypotheses were tested in order to examine the general hypothesis. These were:

Hypothesis III-T-1-a: There is no relationship between the diversity of personnel problems reported by teachers and school size.

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[1] Classifications were simplified in order to enable ten university students employed as coders to attain 99.5% consistency in their classification of student and teacher problems.

Hypothesis III-T-1-b: There is no relationship between the diversity of personnel problems reported by teachers and building design.

Hypothesis III-T-1-c: There is no relationship between the diversity of personnel problems reported by teachers and the plan of building utilization.

Hypothesis III-T-1-d: There is no relationship between the diversity of personnel problems reported by teachers and the type of school building.

To examine the sub-hypotheses, the first mentioned problem for each teacher was classified by one of the four problem categories. The responses were then arrayed by the building type factors and the resulting distributions examined by means of the Chi square test. Data are presented in Tables 1,2,3 and 4 of Appendix E.

(1) Diversity of Teacher Problems by Size of School

The data were first arrayed by size of school. The results, in percent, are presented in Table F.1 below.

TABLE F.1

Distribution of Teacher Personnel Problems
by Size of School
(In Percent)

	Type of Problem			
Size of School	Personal	Instructional	Administrative	Relational
Large	16.5	21.7	30.0	(17.2)
Medium	14.2	20.1	30.6	12.1
Small	18.0	(36.0)	(21.0)	(6 0)
Total	15.7	22.3	29.4	14.2

Source: Table 1 of Appendix E.

The percentages enclosed by parentheses, in Table F.1, were significantly different than expected by Chi square test. From the results duplicated in Table F.1, it is evident that the distribution of teachers' responses from small schools is different than from medium and large schools. A greater proportion of instructional problems was reported by teachers, and a lesser proportional of administrative and relationship problems. Medium enrollment schools were at or near the average in each case. Teachers in large schools reported a greater proportion of relationship problems than expected; however relationship and personal problems were reported in a minority of cases by all teachers.

On the basis of the evidence presented above, it seems reasonable to conclude that there was less diversity of problems reported by teachers in small schools than teachers of medium and large enrollment schools. With one exception (relational problems), the responses of teachers of medium and large enrollment schools conformed to the average for all schools. Teachers of small enrollment schools, however, concentrated their responses in the instructional problem area and reported significantly fewer responses in two other areas. On the basis of this evidence, Hypothesis III-T-1-a was rejected.

If size of school were the dominant factor in the relationship between building type factors and diversity of teacher personnel problems, these anticipated results would be observed when the factors of design, organization and type of building were compared with personnel problems.

1. Teachers of the large, Type I buildings would report more relational problems than expected;
2. Teachers of the small, Type IV buildings would report fewer relational and administrative problems than expected, but more instructional problems;
3. Teachers of the moderate enrollment, Type II and Type III schools would report essentially the same types of problems; if differences were to occur, the teachers of the larger, Type II schools would report a greater proportion of relational problems than expected.
4. Teachers of the moderate enrollment, SWS and Subject-Area would report essentially the same types of problems; if differences were to occur the teachers of the larger, SWS buildings would report a greater proportion of relational problems than expected.
5. Teachers of the moderate enrollment, Compact and Campus buildings would report essentially the same types of problems; if differences were to occur, teachers of the larger, Compact buildings would report a greater proportion of relational problems than expected.

(2) Diversity of Teacher Problems by Building Factors

Data were arrayed by the building factors of design, plan of building utilization and type of building. Results are expressed in percentage in Table F.2.

TABLE F.2

Distribution of Teacher Personnel Problems by Building Factors (In Percent)

Type of Problem	Building Factors Type of Building Hyp. III-T-1-a I	 II	 III	 IV	 V	 Design Hyp. III-T-1-b Campus	 Compact	 Utilization Hyp. III-T-1-c SWS	 Subject	Average
Personal	(20.3)	17.8	(12.6)	15.4	13.6	14.1	(18.6)	14.8	16.5	15.7
Instructional	(16.5)	21.6	(26.4)	24.8	(14.4)	23.7	(19.9)	21.1	23.4	22.3
Administrative	(34.6)	(36.0)	27.2	27.0	(20.3)	(25.9)	(35.5)	27.5	31.0	29.4
Relational	14.3	(9.1)	(19.2)	(11.2)	(22.9)	(16.1)	(10.8)	(18.7)	(10.3)	14.2
Miscellaneous	(14.3)	(15.5)	(14.6)	(21.5)	(28.8)	20.2	15.1	17.8	18.8	18.3

Source: Tables 1,2,3 and 4 of Appendix E.

Note: Percentages enclosed by parentheses are those significantly greater or less than expected by Chi square test.

(2) Teacher Personnel Problems and Building Types

From Table F.2 it may be observed that teachers of the large, Type I buildings reported a greater proportion of personal and administrative problems than expected. They also reported fewer instructional problems than expected and fewer non-classifiable miscellaneous problems. Despite the earlier prediction for large schools, they reported an average number of relational problems.

Teachers of Type II buildings followed somewhat the pattern reported in Type I schools. They reported a greater proportion of administrative problems than expected, and fewer relational and non-classifiable miscellaneous problems.

Teachers of Type III buildings, contrary to the prediction by size of school, reported fewer personal and non-classifiable miscellaneous problems, but more instructional and relational problems than expected.

Teachers of the generally small, Type IV buildings, consistently with the prediction for size of building, reported a lesser proportion of relational problems than expected. They also reported a greater proportion of non-classifiable miscellaneous problems.

In general, the results obtained by type of building did not conform to the expectations by size of school. Although the results are difficult to interpret, it appears that there is less concentration of responses in one or two of the problem areas among teachers of Type IV schools. Responses were concentrated--to a degree greater than expected by Chi square test--in each of the other four building types. Hence, it seems reasonable to conclude that there is a greater diversity of problems reported by teachers in the Type IV schools. Since this is contrary to the prediction for the class of small schools, it is concluded that there is a relationship between building type and the diversity of personnel problems reported by teachers. Hence, Hypothesis III-T-1-d was rejected.

(3) Teacher Personnel Problems and Building Design

From Table F.2, it is clear that there are differences in the responses of teachers by design of building. Teachers in Compact buildings reported a greater proportion of personal and administrative problems than expected, and a lesser number of instructional and relational problems. Teachers of Campus buildings reported a greater proportion of relational problems, but fewer administrative problems than expected. The concentration of reports of relational problems from teachers of the smaller, Campus buildings was not predicted by size of school, hence may be interpreted to be difference by design of building. The pattern of teacher responses from Compact schools also contradicted the predictions by size of school. There were fewer, rather than more, relational problems reported; and despite their relatively larger size, fewer instructional problems and more administrative problems. Hence, it may be concluded that the reports of teacher personnel problems differs by design of building. However, a good judgement simply can not be formulated with respect to diversity of problems reported. It would appear that there is a greater concentration of responses among Compact schools--particularly in the area of administrative problems--and less concentration among responses of teachers in Campus schools. This observation is contrary to the prediction from size of school, hence, there is some basis for rejecting Hypothesis III-T-1-b.

(4) Teacher Personnel Problems and Plan of Building Utilization

In only one area do the responses of teachers of SWS and Subject-Area schools differ. Teachers of SWS reported a greater number of relational problems than the smaller, Subject-Area schools. Since smaller schools, as a class, reported a greater proportion of relational schools, the difference may be interpreted to be independent of school size and related directly to plan of building utilization.

The dispersion of reported teachers' problems between the types of schools, however, cannot be interpreted to be different, hence Hypothesis III-T-1-c was accepted.

(5) Summary of Teacher Personnel Problems

On the basis of the evidence presented in sections (1)-(2) above, it seems apparent--although not conclusive--that building factors are related to the diversity of personnel problems reported by teachers. The relationship, however, is not consistent. Of the several hypotheses tested in this study, these were least conclusive.

B. Diversity and Types of Student Personnel Problems

Students responded to an open-end question concerning school problems and responses were grouped in five categories of problems. These were:

1. Personal:	responses related primarily to study and homework problems,
2. Instructional:	responses related primarily to curriculum and grading problems,
3. Administrative:	responses related primarily to school regulations, buildings and equipment,
4. Relational:	responses related primarily to student-student and student-faculty relationships,
5. School Attitude:	responses related primarily to lack of school "spirit" or lack of student participation in school affairs, etc.

It was hypothesized that:

Hypothesis III-S-1: There is no relationship between the diversity of problems reported by students and building type factors.

As a means of testing the general null hypothesis, four sub-hypotheses were constructed and examined. These were:

Hypothesis III-S-1-a: There is no relationship between diversity of problems reported by students and size of school.

Hypothesis III-S-1-b: There is no relationship between diversity of problems reported by students and school design.

Hypothesis III-S-1-c: There is no relationship between diversity of problems reported by students and plan of building utilization.

Hypothesis III-S-1-d: There is no relationship between diversity of problems reported by students and type of school building.

The data were arrayed by building factors. Raw data are reporduced in Tables 5,6,7 and 8 of Appendix E.

(1) Diversity of Student Personnel Problems and Size of School

Data by size of school are presented in percent in Table F.3.

TABLE F.3

Distribution of Student Personnel Problems
by Size of School
(In Percent)

Type of Problem	Small	Medium	Large	Total
Personal	33.6	32.4	35.9	34.5
Instructional	12.2	11.1	13.1	12.3
Administrative	15.6	(16.1)	(11.5)	13.4
Relational	26.3	26.3	24.3	25.1
School Attitude	4.8	4.9	5.9	5.5
Miscellaneous	7.5	9.2	9.3	9.1
All Types	100.00	100.00	100.00	99.9

Source: Table 5 of Appendix E.

Note: Percentages enclosed by parentheses are more or less than expected by Chi square test.

Students, regardless of school size, reported a greater proportion of problems related to study and homework. Student relationships with other students, and with faculty, were also of concern to a significant minority of students. The two types of concerns, when combined, accounted for approximately 60% of all of the problems reported. Except for the larger number of students than expected in medium enrollment schools who reported administrative problems, and fewer than expected so reporting in large schools, the distributions of responses by size of school are essentially the same. Hence, it was concluded that size of school is not related significantly to the diversity of student personnel problems, and Hypothesis III-S-1-a was accepted.

(2) Diversity of Student Personnel Problems and Building Factors

When the data were examined for possible relationships between other building factors and diversity of student personnel problems, no significant relationships were discerned. The students' responses presented in Table F.4--by type of building, plan of building utilization and by design of school--are distributed in essentially the same manner. It may be concluded, therefore, that diversity of student personnel problems is not related to school building factors; hence, Hypotheses III-S-1-b, III-S-1-c, III-S-1-d, and the general null hypothesis, III-S-1, were accepted.

2. Sources of Help on Problems

It was assumed that the environment provided by certain types of schools might promote strong inter-personnel relationships, hence students, teachers and other personnel within these schools would interact informally and warmly. In other words, the school itself would represent a significant source of interactions for schooll personnel as opposed to non-school sources.

It was hypothesized that:

Hypothesis III-T-2: There is no relationship between building factors and the primary sources of help sought by teachers on problems of personal and acaemic concern.

Hypothesis III-S-2: There is no relationship between building factors and the primary sources of help sought by students on problems of personal and academic concern.

All primary sources of help were placed in two categories: (O) "official" and "non-official" (N) sources of help. For students, "official" sources were teachers, administrators, school counselors and librarians. "Non-official" sources were parents, other students, and out-of-school adults. For teachers, "official" sources of help were school administrators, counselors and librarians; "non-official" sources were peers (i.e. other teachers).

Results were analyzed for six types of student problems and for five types of teacher problems. Tests were also made of the summation of all types of problems.

A. Sources of Help on Student Personnel Problems

Students were asked to identify their primary sources of help when concerned by these six types of problems:

1. Problems with studies;
2. Problems with teacher understanding;
3. Problems of relationships with other students;
4. Problems with student activities;
5. Problems in deciding upon a high school course;
6. Problems in selecting a college or future vocation.

Data were arrayed by building factors for each type of problem and for all problems combined. The results for each type of problem are presented in Tables 9-22 of Appendix E.

TABLE F.4

Distribution of Student Personnel Problems
by Building Factors
(In Per Cent)

Type of Problem	Hyp. III-S-1-d					Hyp. III-S-1-b		Hyp. III-S-1-c		
	I	II	III	IV	V	Compact	Campus	SWS	Subject	Total
Personal	35.1	36.2	34.5	33.5	32.2	35.8	33.7	34.2	34.7	34.5
Instructional	13.4	12.1	11.7	12.4	13.1	12.6	12.2	12.4	12.3	12.3
Administrative	(11.8)	(12.0)	13.2	15.2	14.7	11.9	14.3	13.1	13.7	13.4
Relational	23.9	26.4	25.3	24.4	25.5	25.5	24.9	24.9	25.3	25.1
School Attitude	5.7	4.9	6.6	(4.5)	6.3	5.2	5.6	6.3	4.7	5.5
Miscellaneous	10.1	8.4	8.7	10.0	8.2	9.0	9.2	9.0	9.3	9.1
All Types	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.9	100.0	99.9

Source: Tables 6,7 and 8 Appendix E.

Percentages enclosed by parenthenses are greater or less than those expected by Chi square test.

In testing the general hypothesis, however, four sub-hypotheses were examined. These were:

Hypothesis III-S-2-a: There is no relationship between the primary sources of help on student personnel problems and size of school.

Hypothesis III-S-2-b: There is no relationship between the primary sources of help on student personnel problems and type of school building.

Hypothesis III-S-2-c: There is no relationship between the primary sources of help on student personnel problems and school design.

Hypothesis III-S-2-d: There is no relationship between the primary sources of help on student personnel problems and the plan of school building utilization.

(1) Sources of Help and Size of School

The data were first arrayed by size of school. In Column D of Table F.5, it may maybe observed that students of large schools consistently identify "non-official" persons as their primary sources of assistance on problems. Students of small and medium enrollment schools just as consistently indicated school officials as their primary sources of assistance. Differences were significant in each case at the .05 or .01 levels (See Appendix E). It must be concluded, therefore, that size of school is related to sources of assistance on student personnel problems, hence Hypothesis III-S-2-a was rejected.

If size of school is a dominant factor in this set of relationships--as it has been demonstrated to be in certain previously described relationships--the following predicitions can be made concerning the relationship and sources of help on student personnel problems and other building factors:

1. In the large, Type I schools, students are expected to seek assistance primarily from non-official sources.

2. In the small, Type IV schools, students are expected to seek assistance primarily from official sources.

3. In the moderately enrolled, Type II and Type III schools, students are expected to seek assistance primarily from official sources. If differences were to occur between these types, the larger, Type II schools should indicate greater "non-official" sources and the smaller, Type III schools, "official" sources.

4. Students of the moderately enrolled, SWS and Subject-Area schools should evidence no differences; however, were differences to occur, the larger SWS should report more "non-official" sources.

TABLE F.5

Sources of Help for Students Seeking Assistance on Problems of Personal and Academic Concern (Official VS Non-Official Sources)

	A Type					B Design		C Utilization		D Size		
Type of Problem	I	II	III	IV	V	Compact	Campus	SWS	Subject	S	M	L
A. For students with problems with their studies.	-	N	-	-	N	N	-	-	N	O	O	N
B. For students with problems with teacher understanding	O	N	O	-	N	-	O	O	N	O	O	-
C. For students with problems of relations with other students.	-	N	O	O	N	N	O	O	-	O	O	N
D. For students with problems in student activities.	-	-	O	O	N	-	O	O	O	-	O	N
E. For students with problems of deciding a high school course.	-	-	-	O	N	-	O	-	O	O	O	N
F. For students with problems of selecting college or a vocation.	-	O	-	-	N	N	-	-	O	O	O	N
G. For all types of students' problems combined.	N	N	O	O	N	N	O	-	-	O	O	N

Source: Tables 9-22 of Appendix E.

Key:
(O) = "official" sources of help
(N) = "non-official" sources of help
(-) = No significant trend toward "official" or "non-official" sources of help.

(2) Sources of Help and Type of School Building

When the data were arrayed by type of school building, the results (See Column A, Table F.5) were about as anticipated by size of school alone.

The larger, Type I, Type II and Type V schools indicated "non-official" sources when all problems were combined. The reports for each type of problem were fully consistent from students of Type V schools, less so from students of Type II and Type I schools.

The small, Type IV schools consistently reported "official" sources as did the students in Type III schools.

Since the Type II and Type III schools are both of moderate enrollment, but differ principally in their design elements, differences in their students' reports appeared at first to be more nearly related to design than to enrollment factors.

Although the Type III schools, as a class, are larger, their students reported essentially the same sources of help of those students in the smaller, Type IV schools. The two types of schools differ not only in enrollment but also by the factor of utilization; the Type III school is a class of SWS, the Type II, Subject-Area. Both are of Campus design.

The data, therefore, were examined for differences by school design and plan of building utilization. In Column C of Table F.5, it is clear that there are no essential differences in sources of help reported by students of SWS and Subject-Area schools. The picture is quite clear when all types of problems were combined (G) and also for four of the six individual problem areas. Hence, Hypothesis III-S-2-d was accepted.

Differences were reported among students of Compact and Campus buildings. From Column B of Table F.5, it is clear that the students of Compact buildings tend to refer to "non-official" sources of help on problems, while students of Campus buildings turn to "officials". The differences are significant; however, Compact schools are generally larger--and large schools as a class reported non-official sources--therefore, the relationship of design to sources of help cannot be established independently of the factor of size of school; hence, Hypothesis III-S-2-c was accepted.

Given this information, it would appear that the differences in sources of help reported by students of the larger, Type II schools and those of Type III schools cannot be attributed to differences in school design independently of size of school.

The similarity in student reports of Type III and Type IV schools--although Type III schools are larger and differences in students' reports were expected--cannot be attributed to factors of size, design or utilization. Hence, it must be concluded that the Type III school is directly related to sources of help. Hypothesis III-S-2-b, therefore, was rejected.

B. Sources of Help On Teacher Personnel Problems

Teachers were asked to identify the primary sources of assistance on five types of problems. These were:

1. Problems in preparing lesson plans.
2. Problems of evaluating student performance.
3. Problems of introducing a new teaching technique.
4. Problems of committee assignments and work.
5. Problems of student acceptance.

Data for each problem are presented in Tables 23-34 of Appendix E.

In order to examine the general hypothesis (p.6.8) related to teacher personnel problems, four sub-hypotheses were tested. These were:

Hypothesis III-T-2-a: There is no relationship between the primary sources of help on teacher personnel problems and size of school.

Hypothesis III-T-2-b: There is no relationship between the primary sources of help on teacher personnel problems and school design.

Hypothesis III-T-2-c: There is no relationship between the primary sources of help on teacher personnel problems and plan of building utilization.

Hypothesis III-T-2-d: There is no relationship between the primary sources of help on teacher personnel problems and type of school building.

Responses of teachers were classified by two categories of primary sources: "Administrators" and "Peers". The category of "Administrators" included school principals, vice-principals, counselors and librarians. The category of "Peers" included teachers of the same or of different subjects within the school. The data were arrayed by building factors and subjected to Chi square tests. Results are presented in Appendix E.

(1) Sources of Help and Size of School

Data were first organized by size of school. In Table F.6, it is clear that size of school is a related, but not a dominant, factor in sources of help on teacher personnel problems.

Although there were no differences among teachers by size of school with respect to all types of problems, teachers of large schools sought assistance from administrators more frequently than expected on problems (a) of student acceptance and (b) of work on school committees. Conversely, teachers of small schools sought assistance from peers more frequently than on problems of (a) preparing lesson plans and (b) working on school committees. These differences were significant at the .05 level. (See Appendix E.)

TABLE F.6

Distribution of Primary Sources of Help on Teacher Personnel Problems by Size of School

Type of Problem	Small	Medium	Large
Problems in preparing lesson plans	P	-	-
Problems of evaluating student performance	-	-	-
Problems in introducing new teaching technique	-	-	-
Problems in working on school committees	P	-	A
Problems of student acceptance	-	-	A
All types of teacher personnel problems	-	-	-

Source: Tables 29-34 of Appendix E.

Key: "P": more assistance sought from "Peers" than expected.

"A": more assistance sought from "Administrators" than expected.

"-": no differences among schools in choice of primary sources of help on teacher personnel problems.

It may be concluded, therefore, that size of school is related to some teacher personnel problems, but the results are not such as to warrant rejection of Hypothesis III-T-2-a. The trend, however, is clear: teachers of large schools tend to seek assistance from administrators and teachers of small schools from other teachers.

(2) Sources of Help and Building Factors

In Table F.7, the primary sources of help are distributed by building design, pattern of utilization and by building type.

a. Sources of Help and Design

From the data reproduced in Table F.7, it is clear that teachers of Compact schools generally seek assistance from administrators. Conversely, teachers of Campus buildings generally seek assistance from their teacher peers. The differences by design of building are significant at the .05 level (See Appendix E) and are valid (a) for all problems combined and (b) for three of the five individual problems.

TABLE F.7

Distribution of Primary Sources of Help on Teacher Personnel Problems by Building Factors

Type of Problem	Design Co.	 Ca.	Utilization SWS	 Subj.	 I	 II	Type III	 IV	 V
Preparing lesson plans	A	(P)	P	(A)	-	A	P	(A)	P
Evaluating student performance	A	P	-	A	P	A	-	-	P
Introducing new technique	A	P	P	A	-	-	P	-	-
Committee work	(-)	(-)	(P)	(A)	(-)	-	P	(A)	P
Student acceptance	(-)	-	(-)	-	(-)	A	-	A	P
All Problems	A	P	P	A	-	A	P	A	P

Source: Tables 23-28 of Appendix E.

Key:

"A": more assistance sought from Administrators than expected.

"P": more assistance sought from Peers (other teachers) than expected

"-": no differences among schools in choices of primary sources of help on teacher personnel problems.

Campus buildings, however, are in general smaller than Compact schools. Although a strong relationship between size of school and sources of help was not established (refer to section (1), the trend of information from teachers of the smaller, Campus schools is essentially the same as for the class of small schools; hence, the factor of school design cannot be related to sources of help independently of the factor of school size. Hypothesis III-T-2-b, therefore, was accepted.

b. Sources of Help and Pattern of Building Utilization

Significant differences in teacher responses is apparent in Table F.7 by pattern of building utilization. Teachers of SWS buildings generally sought assistance from teacher peers, teachers of Subject-Area schools, from administrators. The differences were significant at the .05 level (See Appendix E) and valid (a) for all problems combined and (b) for four of the five individual problems.

SWS buildings are generally larger schools, however. If the factor of school size were influencing the relationship between utilization and sources of help, it would have been expected that teachers of SWS buildings would seek assistance primarily from administrators, not peers. Conversely, teachers of the generally smaller, Subject-Area buildings would have been expected to seek help primarily from peers, not administrators. The trends of choices of sources of help run contrary to those anticipated by size of school, hence it must be concluded that pattern of utilization is directly related to sources of help on teacher personnel problems independently of school size. Hypothesis III-T-2-c, therefore, was rejected.

c. Sources of Help and Building Types

The data by type of building in Table F.7 confirm the judgement rendered above concerning the SWS pattern of utilization. Clearly teachers of Type III and Type V buildings sought assistance primarly from peers. Both building types are forms of SWS. In the one problem area in which differences were significant among teachers of the large, Type I schools, assistance also was sought from peers, not administrators, as would have been expected if the factor of size were dominant. Type I schools are also SWS. Hence, it cannot be concluded that type of building is building an independent factor, but that pattern of utilization is.

Teachers of the moderate enrollment, Type II schools and of the relatively small, Type IV schools consistently sought assistance from administrators. Both Types are Subject-Area schools, but Type II is a Compact building and Type IV a Campus building. This provides further evidence that pattern of utilization rather than design of building and/or type of school is the critical factor in the relationship between buildings and primary sources of assistance on teacher personnel problems. Hypothesis III-T-2-d, therefore, was accepted.

C. Summary and Conclusions

In this chapter two aspects of interaction were examined, namely: (a) the diversity of personnel problems of concern to teachers and students and (b) the primary sources of help sought by students and teachers on their personnel problems.

Four general hypotheses were examined and sixteen sub-hypotheses tested. The results are summarized in Table F.8 below.

TABLE F.8

Summary of Results of Tests of Hypotheses Concerning Diversity of Personnel Problems and Sources of Help on Problems

Hypothesis	Building Factor	Accepted	Rejected	Sign.
III-T-1	General (Teacher)		X	
III-T-1-a	Size of School		X	.05
III-T-1-b	Building Design		?	
III-T-1-c	Utilization	X		
III-T-1-d	Type of Building		X	.05
III-S-1	General (Student)	X		
III-S-1-a	Size of School	X		
III-S-1-b	School Design	X		
III-S-1-c	Utilization	X		
III-S-1-d	Type of Building	X		
III-S-2	General (Student)		X	
III-S-2-a	Size of School		X	.05
III-S-2-b	Type of Building		X	.05
III-S-2-c	Building Design	X		
III-S-2-d	Utilization	X		
III-T-2	General (Teacher)		X	
III-T-2-a	Size of School		?	
III-T-2-b	Building Design	X		
III-T-2-c	Utilization		X	.05
III-T-2-d	Type of Building	X		

Of the sixteen sub-hypotheses, five were rejected at appropriate levels of confidence; nine were accepted and the results of two tests were moot. Of the four general hypotheses, three were rejected on the basis of the results of tests of sub-hypotheses; one was accepted.

On the basis of the evidence presented in this chapter, it may be concluded that:

(1) The diversity of personnel problems reported by teachers is related to building type factors; specifically to the factors of school size and plan of building utilization.

(2) The diversity of personnel problems reported by students, however, is not related to building type factors.

(3) Among students, size of school and the Type III (Campus: SWS) building are related to the sources of help primarily sought on problems; specifically, students of large schools seek assistance more frequently than expected from non-official sources; students in small and in Type III schools seek assistance primarily from official school sources.

(4) Among teachers, plan of building utilization and, to a lesser degree, size of school are related to the sources of help primarily sought on problems. Specifically, teachers of large schools tend to seek assistance from administrators and teachers of small schools from teacher peers. Teachers of SWS buildings, regardless of school size or building design, seek assistance more frequently than expected from other teachers, while teachers in subject-area schools tend to rely upon administrators as primary sources of help.

APPENDIX E

Reference Tables and Materials

For Use With
Chapter 6

TABLE 1

Distribution of Teacher Personnel Problems by Size of School

	Size of School			
Type of Problem	**Small**	**Medium**	**Large**	**Total**
Personal	**18**	**61**	**95**	**174**
Instructional	**36**	**86**	**125**	**247**
Administrative	**21**	**131**	**173**	**325**
Relational	**6**	**52**	**99**	**157**
Miscellaneous	**19**	**100**	**84**	**203**
All Types	**100**	**430**	**576**	**1106**

TABLE 2

Distribution of Teacher Personnel Problems by School Design

Type of Problem	**Campus**	**Compact**	**Total**
Personal	**100**	**74**	**174**
Instructional	**168**	**79**	**247**
Administrative	**184**	**141**	**325**
Relational	**114**	**43**	**157**
Miscellaneous	**143**	**60**	**203**
All Types	**709**	**397**	**1106**

E.3

TABLE 3

Distribution of Teacher Personnel Problems by Plan of Building Utilization

Type of Problem	SWS	Subject	Total
Personal	76	98	174
Instructional	108	139	247
Administrative	141	184	325
Relational	96	61	157
Miscellaneous	91	112	203
All Types	512	594	1106

E.4

TABLE 4

Distribution of Teacher Personnel Problems by Type of Building

	Type of Building					
Type of Problem	I	II	III	IV	V	Total
Personal	27	47	33	51	16	174
Instructional	22	57	69	82	17	247
Administrative	46	95	71	89	24	325
Relational	19	24	50	37	27	157
Miscellaneous	19	41	38	71	34	203
All Types	133	264	261	330	118	1106

TABLE 5

Distribution of Pupil Personnel Problems by Size of School

Type of Problem	Small	Medium	Large	Total
Personal	188	839	1548	2575
Instructional	68	288	566	922
Administrative	87	417	497	1001
Relational	147	681	1048	1876
School Attitude	27	127	254	408
Miscellaneous	42	237	404	683
All Types	559	2589	4317	7465

E.6

TABLE 6

Distribution of Pupil Personnel Problems by School Design

Type of Problem	Compact	Campus	Total
Personal	988	1587	2575
Instructional	347	575	922
Administrative	329	672	1001
Relational	704	1172	1876
School Attitude	143	265	408
Miscellaneous	250	433	683
All Types	2761	4704	7465

E.7

TABLE 7

Distribution of Student Personnel Problems by Plan of Building Utilization

Type of Problem	SWS	Subject	Total
Personal	1244	1331	2575
Instructional	451	471	922
Administrative	476	525	1001
Relational	906	970	1876
School Attitude	228	180	408
Miscellaneous	328	355	683
All Types	3633	3832	7465

E.8

TABLE 8

Distribution of Student Personnel Problems by Type of Building

	Type of Building					
Type of Problem	I	II	III	IV	V	Total
Personal	346	642	681	690	216	2575
Instructional	132	215	231	256	88	922
Administrative	116	213	261	312	99	1001
Relational	236	468	499	502	171	1876
School Attitude	56	87	130	93	42	408
Miscellaneous	100	150	173	205	55	683
All Types	986	1775	1975	2058	671	7465

Sources of Help for Students in Problems of "Teacher Understanding" by Type of School

	Type of School					
Source of Help	I	II	III	IV	V	Total
Teacher	114	154	200	174	49	691
Student Friend	73	116	112	142	54	497
Principal or Vice-Prin.	50	156	181	126	32	545
Counselor	541	881	1044	1179	362	4007
Friend Outside	12	32	17	20	12	93
Parent	179	395	394	402	131	1501
Other	69	98	95	99	36	397
No Response *	27	44	59	51	27	208
Total	1065	1876	2102	2193	703	7939

* Combines "omission" and "incorrect answer".

$X^2 = 95.0032$ d.f. = 32 $P < .01$

"Design" Categories were obtained by combining: Types I and II (Compact); Types III, IV, and V (Campus).
$X^2 = 15.6953$ d.f. = 8 $P < .05$

"Utilization" Categories were obtained by combining: Types I and III (SwS); Types II and IV (Subject).
$X^2 = 10.13771$ d.f. = 8 not significant

E.10

Sources of Help for Students in Problems of "Difficulty With Studies" by Type of School

Source of Help	Type of School I	II	III	IV	V	Total
Teacher	118	183	233	255	77	866
Student Friend	215	455	397	374	154	1595
Principal or Vice-Prin.	5	26	33	22	6	92
Counselor	262	477	639	674	177	2229
Friend Outside	18	39	46	40	22	165
Parent	258	258	48	535	168	1267
Other	155	155	181	195	47	733
No Response *	35	77	96	97	55	360
Total	1066	1670	1673	2192	706	7307

* Combines "omission" and "incorrect answer".

$X^2 = 509.0540$ d.f. 32 $P < .01$

"Design" Categories were obtained by combining: Types I and II (Compact); Types III, IV, and V (Campus).

$X^2 = 59.5707$ d.f. 8 $P < .01$

"Utilization" Categories were obtained by combining: Types I and III (SWS); Types II and IV (Subject).

$X^2 = 3.40546$ d.f. 8 Not significant

Sources of Help for Students in Problems of "Getting along With Other Students" by Type of School

Source of Help	Type of School I	II	III	IV	V	Total
Teacher	57	53	86	86	13	295
Student Friend	342	628	665	692	243	2570
Principal or Vice Prin.	16	47	53	55	8	179
Counselor	213	367	465	474	144	1663
Friend Outside	75	98	96	111	40	420
Parent	252	496	521	560	186	2015
Other	15	24	27	16	5	87
No Response *	49	85	95	107	43	379
Total	1019	1798	2008	2101	682	7608

* Combines "omission" and "incorrect answer"
X^2 = 57.30061 d.f. 8 P $<$ .01

"Design" Categories were obtained by combining: Types I and II (Compact); Types III, IV, and V (Campus).
X^2 = 11.0144 d.f. 8 Not Significant

"Utilization" Categories were obtained by combining: Types I and III (SWS); Types II and IV (Subject).
X^2 = 7.46221 d.f. 8 Not Significant

E.12

Sources of Help for Students in Problems of "Student Activities" by Type of School

Sources of Help	Types of Schools I	II	III	IV	V	Total
Teacher	127	99	152	143	15	536
Student Friend	312	548	565	561	216	2202
Principal or Vice Prin.	13	53	39	50	15	170
Counselor	203	435	499	558	160	1855
Friend Outside	25	53	54	49	27	208
Parent	174	282	381	358	133	1328
Other	25	29	30	45	6	135
No Response *	41	62	68	89	36	296
Total	920	1561	1788	1853	608	6730

* Combines "omissions" and "incorrect answers"
$X^2 = 131.9112$ d.f. = 32 $P < .01$

"Design" Categories were obtained by combining: Types I and II (Compact); Types III, IV, and V (Campus).
$X^2 = 20.62954$ d.f. = 8 $P < .01$

"Utilization" Categories were obtained by combining: Types I and III (SWS); Types II and IV (Subject).
$X^2 = 23.89775$ d.f. = 8 $P < .01$

Sources of Help for Student in Problems of "Deciding on a High School Course" by Type of School

	Type of School					
Sources of Help	I	II	III	IV	V	Total
Teacher	110	61	134	135	22	462
Student Friend	16	30	33	28	19	126
Principal or Vice-Prin.	24	80	91	41	12	248
Counselor	598	1248	1325	1496	473	5140
Friend Outside	11	28	22	17	21	99
Parent	266	384	430	404	138	1622
Other	16	11	21	17	6	71
No Response *	25	40	52	58	15	190
Total	1066	1882	2108	2196	706	7958

* Combines "omission" and "incorrect answer".
$X^2 = 177.0582$ d.f. = 32 $P < .01$

"Design" Categories were obtained by combining: Types I and II (Compact); Types III, IV, and V (Campus).
$X^2 = 12.65528$ d.f. = 8 Not significant

"Utilization" Categories were obtained by combining: Types I and III (SWS); Types II and IV (Subject).
$X^2 = 36.01751$ d.f. = 8 $P < .01$

E.14

Sources of Help for Student In Problems of "College or Vocational Selection" by Type of School

Source of Help	Type of School I	II	III	IV	V	Total
Teacher	57	35	50	59	13	214
Student Friend	7	8	15	15	11	56
Principal or Vice Prin.	37	100	124	82	19	362
Counselor	581	1109	1160	1331	429	4610
Friend Outside	17	28	42	38	24	149
Parent	293	501	612	556	175	2137
Other	23	27	27	29	5	111
No Response *	51	71	78	84	28	312
Total	1066	1879	2108	2194	704	7951

* Combines "omission" and "incorrect answer".

X^2 = 109.25742 d.f. = 32 $P < .01$

"Design" Categories were obtained by combining: Types I and II (Compact; Types III, IV, and V (Campus).
X^2 =-14.7686 d.f. = 8 Not significant

"Utilization" Categories were obtained by combining: Types I and III (SWS); Types II and IV (Subject).
X^2 = 19.45532 d.f. = 8 $P < .05$

Sources of Help for Students on All Problems
(E-1-E-6)
by Type of School

Sources of Help	Type of School I	II	III	IV	V	Total
Teacher	583	585	855	852	189	3064
Student Friend	965	1785	1787	1812	697	7046
Principal or Vice Prin.	145	462	521	376	92	1596
Counselor	2398	4517	5132	5712	1745	19504
Friend Outside	158	278	277	275	146	1134
Parent	1422	2316	2386	2815	931	9870
Other	303	344	381	401	105	1534
No Response	228	379	448	486	204	1745
Total	6202	10666	11787	12729	4109	45493

$X^2 = 448.7628$ d.f. = 32 $P < .01$

"Design" Categories were obtained by combining: Types I and II (Compact); Types III, IV, and V (Campus).
$X^2 = 89.45887$ d.f. = 8 $P < .01$

"Utilization" Categories were obtained by combining: Types I and III (SWS); Types II and IV (Subject).
$X^2 = 69.46259$ d.f. = 8 $P < .01$

E.16

Sources of Help for Students in Problem of "Teacher Understanding" by Size of School

	Size			
Source of Help	**Small**	**Medium**	**Large**	**Total**
Teacher	**56**	**215**	**410**	**691**
Student Friend	**42**	**174**	**281**	**497**
Principal or Vice Principal	**73**	**208**	**264**	**545**
Counselor	**265**	**1407**	**2335**	**4007**
Friend Outside	**5**	**31**	**57**	**93**
Parent	**110**	**500**	**891**	**1501**
Other	**26**	**121**	**250**	**397**
No Response	**12**	**93**	**103**	**208**
Total	**589**	**2749**	**4601**	**7939**

$X^2 = 64.5076$ d.f. 16 $p < .01$

E.17

Sources of Help for Students in Problem of "Difficulty With Studies" by Size of School

	Size			
Source of Help	Small	Medium	Large	Total
Teacher	92	295	479	866
Student Friend	120	526	949	1595
Principal or Vice Principal	14	41	37	92
Counselor	168	858	1203	2229
Friend Outside	8	52	105	165
Parent	121	609	1138	1868
Other	42	239	496	777
No Response	25	133	202	360
Total	590	2753	4609	7952

$X^2 = 71.0401$ d.f. 16 $p < .01$

E.18

Sources of Help for Students in Problem of "Getting Along With Other Students" by Size of School

Source of Help	Size Small	Medium	Large	Total
Teacher	20	116	159	295
Student Friend	169	877	1524	2570
Principal or Vice Principal	28	65	86	179
Counselor	138	587	938	1663
Friend Outside	20	140	260	420
Parent	149	675	1191	2015
Other	8	32	47	87
No Response	27	135	217	379
Total	559	2627	4422	7608

$X^2 = 38.8151$ d.f. 16 $p < .01$

E.19

Sources of Help for Students in Problem of "Student Activities" by Size of School

Source of Help	Size Small	Medium	Large	Total
Teacher	21	219	296	536
Student Friend	140	736	1326	2202
Principal or Vice Principal	32	62	76	170
Counselor	143	683	1029	1855
Friends Outside	14	64	130	208
Parent	103	441	784	1328
Other	13	49	73	135
No Response	22	113	161	296
Total	488	2367	3875	6730

$X^2 = 165.2886$ d.f. 16 $p < .01$

E.20

Sources of Help for Students in Problem of "Deciding On A High School Course" by Size of School

	Size			
Source of Help	Small	Medium	Large	Total
Teacher	20	127	135	462
Student Friend	6	41	79	126
Principal or Vice Principal	34	97	117	248
Counselor	391	1846	2903	5140
Friends Outside	7	39	53	99
Parent	107	523	992	1622
Other	4	23	44	71
No Response	20	62	108	190
Total	589	2758	4611	7958

$X^2 = 58.50374$ d.f. 16 $p < .01$

E.21

Sources of Help for Students in Problem of "College or Vocational Selection" by Size of School

	Size			
Source of Help	Small	Medium	Large	Total
Teacher	19	61	134	214
Student Friend	2	24	30	56
Principal or Vice Principal	44	135	183	362
Counselor	335	1640	2635	4610
Friends Outside	7	48	94	149
Parent	150	726	1261	2137
Other	9	31	71	111
No Response	21	91	200	312
Total	587	2756	4608	7951

$X^2 = 37.6833$ d.f. 16 $p < .01$

Sources of Help for Students On All Problems
(E-8-13)
by Size of School

Source of Help	Size Small	Medium	Large	Total
Teacher	228	1033	1803	3064
Student Friend	479	2378	4189	7046
Principal or Vice Principal	225	508	763	1596
Counselor	1440	7021	11043	19504
Friends Outside	61	374	699	1134
Parent	740	3474	6257	10471
Other	102	495	981	1578
No Response	127	627	991	1745
Total	3402	15910	26726	46138

$X^2 = 303.4046$ d.f. 16 $p < .01$

Source of Help for Teachers in "Preparing Lesson Plans" by Type of School

	Type of School					
Source of Help	I	II	III	IV	V	Total
Administrator	3	30	15	23	1	72
Department Head	52	88	51	113	36	340
Teacher Friend	21	34	51	55	18	179
Same Subject Teacher	57	99	132	148	60	496
Other	8	19	26	19	9	81
Total	141	270	275	358	124	1168

$X^2 = 48.5757$ d.f. = 16 $p < .01$

"Design" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$X^2 = 19.4972$ d.f. = 8 $p < .05$

"Utilization" Categories were obtained by combining Types I and III (SWS); Types II and IV (Subject).
$X^2 = 25.6547$ d.f. = 8 $p < .01$

Source of Help for Teachers in "Evaluating Pupil Progress" by Type of School

Source of Help	Type of School I	II	III	IV	V	Total
Administrator	7	64	42	38	13	164
Department Head	45	55	40	101	28	269
Teacher Friend	22	35	44	50	22	173
Same Subject Teacher	24	51	56	94	28	253
Other	44	68	79	80	31	302
Total	142	273	261	363	122	1161

$X^2 = 108.6939$ d.f. = 24 $p < .01$

"Design" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$X^2 = 19.8999$ d.f. = 7 $p < .05$

"Utilization" Categories were obtained by combining Types I and II (Compact); Types II, IV and V (Campus).
$X^2 = 23.7777$ d.f. = 8 $p < .01$

E.25

Source of Help for Teachers in "Introducing New Techniques" by Type of School

Source of Help	Type of School I	II	III	IV	V	Total
Administrator	4	36	20	26	4	90
Department Head	59	86	65	125	47	382
Teacher Friend	12	14	41	28	12	107
Same Subject Teacher	60	116	124	160	58	518
Other	8	17	26	19	3	73
Total	143	269	276	358	124	1170

$\chi^2 = 60.9862$ d.f. = 20 $p < .01$

"Design" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$\chi^2 = 12.6252$ d.f. = 8 Not significant

"Utilization" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$\chi^2 = 20.7629$ d.f. = 8 $p < .01$

Source of Help for Teachers in "Working on Committees" by Type of School

	Type of School					
Source of Help	I	II	III	IV	V	Total
Administrator	56	173	138	205	52	624
Department Head	29	14	18	40	18	119
Teacher Friend	29	57	50	69	33	238
Same Subject Teacher	6	7	10	15	4	42
Other	20	19	32	26	10	107
Total	140	270	248	355	117	1130

$X^2 = 62.0254$ d.f. = 20 $p < .01$

"Design" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$X^2 = 4.3373$ d.f. = 7 Not significant

"Utilization" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$X^2 = 23.8143$ d.f. = 6 $p < .01$

Source of Help for Teachers in "Feeling Accepted by Students" by Type of School

	Type of School					
Source of Help	I	II	III	IV	V	Total
Administrator	12	90	68	106	19	295
Department Head	37	22	22	49	16	146
Teacher Friend	37	86	62	79	33	297
Same Subject Teacher	10	16	15	30	14	85
Other	41	56	83	85	31	296
Total	137	270	250	349	113	1119

$X^2 = 115.0295$ d.f. = 28 $p < .01$

"Design" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$X^2 = 33.8239$ d.f. = 9 Not significant

"Utilization" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$X^2 = 81.9500$ d.f. = 9 $p < .01$

Source of Help for Teachers
on "All Problems" by
Type of School

Source of Help	Type of School I	II	III	IV	V	Total
Administrator	119	543	410	573	135	1780
Department Head	260	289	217	470	158	1394
Teacher Friend	167	296	304	367	151	1285
Same Subject Teacher	158	292	341	456	169	1416
Other	139	203	283	265	87	977
Total	843	1623	1555	2131	700	6852

$X^2 = 297.4340$ d.f. = 28 $p < .01$

"Design" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus).
$X^2 = 26.0490$ d.f. = 7 p .01

"Utilization" Categories were obtained by combining Types I and II (Compact); Types III, IV and V (Campus)
$X^2 = 102.5991$ d.f. = 7 $p < .01$

E.29

Source of Help for Teachers in "Preparing Lesson Plans" by Size of School

	Size of School			
Source of Help	Small	Medium	Large	Total
Administrator	12	25	35	72
Department Head	16	134	190	340
Teacher Friend	18	60	101	179
Same Subject Teacher	50	190	256	496
Other	8	43	46	97
Total	104	452	628	1184

$X^2 = 32.806$ d.f. = 12 $p < .01$

E.30

Source of Help for Teachers in "Evaluation of Pupil Progress" by Size of School

	Size of School			
Source of Help	Small	Medium	Large	Total
Administrator	31	60	73	164
Department Head	12	103	154	269
Teacher Friend	18	60	95	173
Same Subject Teacher	17	97	139	253
Other	26	120	156	302
Total	104	440	617	1161

$X^2 = 110.5340$ d.f. = 14 $p < .01$

E.31

Source of Help for Teachers in "Introducing New Techniques" by Size of School

Source of Help	Small	Medium	Large	Total
		Size of School		
Administrator	15	35	40	90
Department Head	25	141	216	382
Teacher Friend	11	43	53	107
Same Subject Teacher	45	198	275	518
Other	8	38	2	88
Totals	104	455	626	1185

$X^2 = 16.6556$ d.f. = 12 Not Significant

E.32

Source of Help for Teachers in "Working on Committees" by Size of School

Source of Help	Small	Medium	Large	Total
		Size of School		
Administrators	59	235	330	624
Department Head	7	38	74	119
Teacher Friend	23	91	124	238
Same Subject Teacher	4	17	21	42
Other	11	42	64	117
Total	104	423	613	1140

$X^2 = 40.6083$ d.f. = 12 $p < .01$

E.33

Source of Help for Teachers in "Feeling Accepted by Students" by Size of School

Source of Help	Size of School Small	Medium	Large	Total
Administrators	39	116	140	295
Department Heads	5	62	79	146
Teacher Friend	27	114	156	297
Same Subject Teacher	6	33	46	85
Other	27	108	189	324
Total	104	433	610	1147

$X^2 = 59.9191$ d.f. = 14 $p < .01$

E.34

Souce of Help for Teachers on "All Problems" by Size of School

Source of Help	Size of School Small	Medium	Large	Total
Administrators	215	674	891	1780
Department Heads	68	527	799	1394
Teacher Friend	123	481	681	1285
Same Subject Teacher	123	544	749	1416
Other	88	359	530	977
Total	617	2585	3650	6852

Chapter 7

Efficacy of Interaction

In Chapter 4 it was established that frequency of personnel interaction was related significantly to size of school and to certain other non-size related building factors. It was reported that, in general, frequency of interaction varied inversely with size of school. High teacher-administrator, and student-administrator, interaction was reported, however, among Type III schools, contrary to predictions based upon the factor of size of school alone. Subject area patterns of building utilization were reported to inhibit student interaction with school officials in school of medium and small enrollment.

Since frequency of interaction among school personnel varied in accordance with some building type factors, the question was raised:

"Do the essential results of interaction also vary by building type"?

Evidence was brought to bear on an hypothesis related to the efficacy of personnel interaction. The concept of efficacy employed was: the accuracy of knowledge manifested by one group of school personnel for other groups with which they were interacting. Specifically, the measures (a) degree of accuracy of administrators' knowledge of teaching personnel and (b) teachers' knowledge of students were employed. It was hypothesized generally that:

There is no relationship between building factors and the accuracy of knowledge of one group of school personnel about other groups with which they are interacting.

The measure employed to test the general null hypothesis was comprised of simple descriptive questions concerning teachers and students to which administrators and teachers respectively attempted to answer correctly. Specifically, administrators were asked to identify by name three teachers whom they felt they knew best among the teachers of their staff. The administrator was then asked to answer ten simple questions concerning each of these teachers. The administrators' answers were scored against those answers provided by the teachers themselves. A similar task was proposed to teachers. Each was asked to identify by name the one student whom she best knew and to provide, from memory, answers to ten simple questions concerning this student. The teachers' responses were corroborated by information provided by the students. In both cases, the number of "wrong" answers were scored. A perfect score (that is, all "right" answers) was "zero"; the least perfect score was 10. The mean score of administrators was four with a standard deviation of 2.785. Mean score for teachers was 3.1 with a standard deviation of 1.243.

Administrators' Knowledge of Teachers

The level of teacher-principal interaction was reported in Chapter 4 to vary inversely by size of school, i.e. teacher-principal interaction was reported to be greater in small than large schools. Conversely, teacher interaction with vice principals was greater among medium and large schools than among small schools. Teacher-counselor interaction was high regardless of building factors. Teacher-principal interaction, although greater in small than large schools, was generally lower than the level of interaction reported between teachers and vice principals. Teacher interaction with counselors was generally higher than with either vice-principals or principals.

In order to determine the relationship, if any, between frequency of interaction and administrators' knowledge of teachers it was hypothessized that:

Hypothesis V-T-1: There is no relationship between the frequency of teacher-administrator interaction and the accuracy of administrators' knowledge of teachers.

In order to test the general null hypothesis, scores of the three groups of administrators on the adequacy of knowledge of teachers test were examined and compared with the frequency of teacher-administrator interaction reported in Chapter 4. The results are summarized in Table G.1.

TABLE G.1

Teacher-Administrator Interaction and Accuracy of Administrators' Knowledge of Best Known Teacher

Administrator	Level of Interaction	Number of "Wrong Answers"	r
Teacher-Principal	-	4.18	0.5811
Teacher-Vice Principal	-	3.66	0.6204
Teacher-Counselor	-	3.54	0.7483

The curve for frequency of interaction data correlated significantly with the number of wrong answers for each type of administrator-teacher interaction. The number of "wrong answers" was also reported to be different (F test significant at .05 level) and in the direction predicted, i.e. the higher the frequency of interaction, the fewer wrong answers given by administrators concerning their knowledge of best known teachers. Hence, Hypothesis V-T-1 was rejected.

Two observations were then made:

(1) Frequency of interaction varied with size of school, and
(2) Efficacy of interaction varied with frequency of interaction, i.e. the higher the level of teacher-administrator interaction the higher the degree of accuracy reported for administrators' knowledge of teachers.

Since efficacy of interaction was related directly and consistently to frequency of interaction and frequency of interaction related to building types, it follows that they should be related on to the other, i.e. efficacy of interaction should be expected to vary in accordance with those aspects of building size, organization and design to which frequency of interaction is related.

To test the adequacy of the supposed relationship, the following sub-hypotheses was tested, namely:

Hypothesis V-T-2: There is no relationship between size of school and the accuracy of principals' knowledge of teachers.

Hypothesis V-T-3: There is no relationship between size of school and vice principals' knowledge of teachers.

Hypothesis V-T-4: There is no relationship between size of school and counselors' knowledge of teachers.

The results obtained, as summarized in Table G.2, were contrary to logical expectation and validated Hypotheses V-T-2, V-T-3 and V-T-4. The Chi square test failed to demonstrate significant differences among the distributions by size of school of principals', vice principals' or counselors' knowledge of teachers.

TABLE G.2

Number of Wrong Answers Concerning Teachers
Reported by Administrators by
Size of School

Number of Wrong Answers	Hyp. V-T-2 Principals			Hyp. V-T-3 Vice Principals			Hyp. V-T-4 Counselors		
	S	M	L*	S	M	L	S	M	L
0- 4	3	10	4	1	9	12	5	27	19
5-10	6	9	6	1	4	4	4	7	7

X^2 = 1.0928 N.S. X^2 = 0.6300 N.S. X^2 = 2.5200 N.S.

* Small schools M = Medium size schools L = Large schools.

Six sub-hypotheses related to building design and utilization also were tested. These were:

Hypothesis V-T-5: There is no relationship between building design and the accuracy of principals' knowledge of teachers.

Hypothesis V-T-6: There is no relationship between building design and the accuracy of vice principals' knowledge of teachers.

Hypothesis V-T-7: There is no relationship between building design and the accuracy of counselors' knowledge of teachers.

Hypothesis V-T-8: There is no relationship between building utilization and the accuracy of principals' knowledge of teachers.

Hypothesis V-T-9: There is no relationship between building utilization and the accuracy of vice principals' knowledge of teachers.

Hypothesis V-T-10: There is no relationship between building utilization and the accuracy of counselors' knowledge of teachers.

No differences in principals', vice principals' or counselors' responses concerning best known teachers were demonstrated by design of school. The responses of administrators of "Compact" and "Campus" schools are summarized in Table G.3.

TABLE G.3

Number of Wrong Answers Concerning Three Best Known Teachers
Reported by Administrators by
Design of School

Number of Wrong Answers	Hyp. V-T-5 Principals		Hyp. V-T-6 Vice Principals		Hyp. V-T-7 Counselors	
	Compact	Campus	Compact	Campus	Compact	Campus
Under 10 of 30 Questions	5	4	3	6	13	10
10 or more of 30 Questions	4	10	4	13	16	18
	X^2 =	N.S.	X^2 =	N.S.	X^2 =	N.S.

Similar results were obtained from Chi square tests of administrators' responses by plan of building utilization. No differences were demonstrated between SWS and Subject Area type buildings. Results are summarized in Table G.4.

TABLE G.4

Number of Wrong Answers Concerning Three Best Known
Teachers by Administrators by Plan of
Building Utilization

Number of Wrong Answers	Hyp. V-T-8 Principals		Hyp. V-T-9 Vice Principals		Hyp. V-T-10 Counselors	
	SWS	Subject	SWS	Subject	SWS	Subject
Under 10 or 30 Questions	6	11	13	9	23	28
10 or more of 30 Questions	4	10	3	6	6	12
	X^2 =	N.S.	X^2 = 2.7500	N.S.	X^2 =	N.S.

A test by type of buildings was eliminated because of the small number of administrators involved. When the 31 principals' responses, for example, were divided into the five categories of building types, greater than 20 percent of the Chi square table cells contained fewer than five responses, hence an adequate test of difference by this method was not feasible.

On the basis of the information presented in Table G.3 and Table G.4, the various sub-hypotheses were accepted. It should be observed, however, that a logical relationship existed between (a) efficacy of interaction and (b) size of school or building type if (a) efficacy of interaction and (b) frequency of interaction are related and at the same time frequency of interaction is related to size of school and building types. Although the relationship was not established empirically by this study, further study of the logical relationships seems warranted because of the limitations of the particular sample.

Teachers' Knowledge of Students

In Chapter 5, it was established that the estimate given by teachers of the total number of different students per teacher did not differ significantly among the different types of schools. On the basis of the relatively equal daily interaction of teachers with students reported in this Classification Hypothesis, it was reasonable to expect that the teachers' knowledge of students would be relatively equal among the several types of schools. Four relevant sub-hypotheses were tested. These were:

Hypothesis V-S-1: There is no relationship between size of school and teachers' knowledge of students.

Hypothesis V-S-2: There is no relationship between type of building and teachers' knowledge of students.

Hypothesis V-S-3: There is no relationship between building design and teachers' knowledge of students.

Hypothesis V-S-4: There is no relationship between plan of building utilization and teachers' knowledge of students.

1940 teachers of the 34 schools answered a gross total of 5926 questions (or an average number wrong of 3.05 per teacher) concerning the student best known to each of them. (Appendix Table F.1) When the responses were examined by size of school, differences in average responses were found to be signifiant between schools of large enrollment and those of medium and small enrollments. The results are summarized in Table G.5.

Contrary to expectation, the average number of wrong answers by teachers in large schools exceeded those in medium and small schools, even though the average degree of accuracy among teachers for all schools was not high (less than seven right answers per teacher).

TABLE G.5

Average Number of Wrong Answers Given by Teachers Concerning Best Known Students by Size of School

Hyp. V-S-1

Size of School		
Small	**Medium**	**Large**
2.97	2.98	3.11
F:		sig. .05

Source: Appendix Table F.2

If the factor of school size were dominant, these differences by building types would also have been expected.

(1) Large Type I, Compact and SWS schools would have reported greater inaccuracy in teachers' knowledge of students;

(2) Small Type IV, Campus and Subject Area schools would have reported lesser inaccuracy in teachers' knowledge of students, and

(3) There should have been no differences between the equal size schools of Type II and Type III.

The data were arranged by building types. The results are summarized in Table G.6.

TABLE G.6

Number of Wrong Answers by Teachers Concerning Best Known Students by Building Types

Hyp. V-S-2 Type of Building					Hyp. V-S-3 Building Design		Hyp. V-S-4 Building Utilization	
I	II	III	IV	V	Compact	Campus	SWS	Subject
3.43	3.25	2.89	2.97	2.91	3.15	2.97	3.17	2.98
F		sig. .05			"t"=	sig. .05	"t" =	sig. .05

1Source: Appendix Table H.3-5

Contrary to expectation, teacher responses varied by type, design and by plan of building utilization. With one exception, differences in responses by building types conformed to those expected from the factor of size of school alone. From data presented Table G.6, it was observed that:

(1) Large Type I schools reported the greatest number of inaccuracies as expected.

(2) However, the least inaccuracy was reported by teachers of Type III schools, less even than that reported from Type IV schools.

(3) Teachers in Type III schools reported less inaccuracies than those in Type II schools even though the schools represented by these types were of equal average size.

(4) The slightly larger "Compact" schools reported a greater average number of inaccuracies as was expected.

(5) The larger enrollment SWS group of schools also reported greater average inaccuracies than the Subject schools.

The factor of size of schools, therefore, accounted for differences among schools by (a) building design and (b) plan of building utilization and (c) by Type I and Type IV schools. Hypothesis V-S-3 and Hypothesis V-S-4, therefore, were accepted. Hypothesis V-S-2, however, was rejected, because differences by size of school alone could not account for the exceptional responses noted from teachers in Type III (Campus: SWS) schools.

It must be concluded, therefore, that the Type III school is directly related to efficacy of teacher-student interaction even though the estimate of total student-teacher ratios in these schools is not significantly different from those in other types of schools. All data are reproduced in Appendix Table F.1-F.5.

Summary and Conclusions

In order to estimate the efficacy of personnel interaction, administrators were tested concerning their knowledge of best known teachers and teachers their knowledge of best known students. The frequency previously reported of administrator-teacher interaction and of teacher-student interaction was re-examined and the results related to the number of "wrong" answers given by school personnel to the test questions.

Ten sub-hypotheses were examined concerning the efficacy of administrator-teacher interaction. Of these, nine were accepted. Four sub-hypotheses relevant to the efficacy of teacher-student interaction were tested and of these two were accepted. In general, three results were obtained. These were:

(1) Although a relationship was established between (a) frequency of administrator-teacher interaction and (b) efficacy of administrator-teacher interaction, it was not demonstrated that the factor of efficacy of administrator interaction varies by building types as was evident with the factor of frequency of interaction. More study is warranted in this area of inquire.

(2) Size of school was established as a factor in the efficacy of teacher-student interaction even though the frequency of student-teacher interaction was not shown to be different among schools by size. In general, teachers in small schools report fewer wrong answers to test questions concerning best known students than do teachers in medium and large schools.

(3) Differences in teachers' responses were reported by building types, but the factor of size of school accounted for all differences except those reported from Type III (Campus: SWS) schools. In general, teachers in the Type III school reported fewer inaccuracies in their knowledge of students than did teachers of other types of schools, and in this respect the Type III school resembled the small school.

Results of the tests of the twelve hypotheses presented in this Chapter are summarized in Table G.7 below.

TABLE G.7

Summary of Results of Tests of Hypotheses Related to Efficacy of Interaction Among School Personnel

Interaction	Hypotheses	Factor	Accepted	Rejected	Level
Administrator	V-T-1	Freq. of interaction		X	.05
Principal	V-T-2	Size of School	X		
Vice Principal	V-T-3	Size of School	X		
Counselor	V-T-4	Size of School	X		
Principal	V-T-5	Building Design	X		
Vice Principal	V-T-6	Building Design	X		
Counselor	V-T-7	Building Design	X		
Principal	V-T-8	Building Utilization	X		
Vice Principal	V-T-9	Building Utilization	X		
Counselor	V-T-10	Building Utilization	X		
Student	V-S-1	Size of School		X	.05
Student	V-S-2	Type of Building		X	.05
Student	V-S-3	Building Design	X		
Student	V-S-4	Building Utilization	X		

APPENDIX F

Reference Tables and Materials

For Use With
Chapter 7

TABLE 1

Teachers' Knowledge of Best Known Students

School Code Number	Number of Teachers	Total Incorrect	Average Number Wrong
1	102	375	3.68
2	43	135	3.14
3	71	194	2.73
4	70	230	3.28
5	34	111	3.26
6	66	184	2.79
7	70	225	3.21
8	54	147	2.72
9	68	220	3.23
10	42	138	3.29
11	43	100	2.32
12	56	123	2.20
13	24	69	2.88
14	20	76	3.80
15	20	25	1.25
16	63	215	3.41
17	70	177	2.52
18	30	78	2.60
19	33	82	2.48
20	76	208	2.74
21	63	163	2.59
22	107	334	3.12
23	80	326	4.08
24	35	105	3.00
25	68	178	2.62
26	51	190	3.72
27	82	304	3.71
28	78	194	2.49
29	29	87	3.00
30	87	283	3.25
31	45	132	2.93
32	83	250	3.01
33	61	197	3.23
34	22	71	3.21
Total	1940	5926	3.05

F.2.1

Teacher Knowledge of Students
by Size of School

Large Schools	Teachers	Total Incorrect
27	82	304
01	102	375
30	87	283
17	70	177
22	107	334
09	68	220
06	66	184
32	83	250
23	80	326
12	56	123
20	76	208
25	68	178
03	71	194
Total	1016	3156

X =3.11

Teacher Knowledge of Students
by Size of School

Medium Schools	Teachers	Total Incorrect
04	70	230
28	78	194
26	51	190
07	70	225
10	42	138
21	63	163
31	45	132
02	43	135
11	43	100
Total	505	1507

X = 2.98

Teacher Knowledge of Schools
by Size of School

Small Schools	Teachers	Total Incorrect
33	61	197
08	54	147
16	63	215
18	30	78
24	35	105
19	33	82
05	34	111
14	20	76
13	24	69
15	20	25
29	29	87
34	22	71
Total	425	1263

X = 2.972

Summary

Large	Medium	Small
3.11	2.98	2.97

Teacher Knowledge of Students
by Type of School

School Number					Number of Teachers					Total Incorrect					Average Number Wrong				
I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	V
22	09	02	01	03	107	68	45	102	71	334	220	135	375	194	3.12	3.23	3.14	3.68	2.73
23	13	04	05	06	80	24	70	34	66	326	69	230	111	184	4.08	2.88	3.28	3.26	2.79
33	14	10	08	07	61	20	42	54	70	197	76	138	147	225	3.23	3.80	3.29	2.72	3.21
	20	12	11			76	56	43			208	123	100			2.74	2.20	2.32	
	21	24	15			63	35	20			163	105	25			2.59	3.00	1.25	
	25	26	16			68	51	63			178	190	215			2.62	3.72	2.41	
	27	28	17			82	98	70			304	194	177			3.71	2.49	2.52	
	31	30	18			45	87	30			132	283	78			2.93	3.25	2.60	
			19					33					82					2.48	
			29					29					87					3.00	
			32					83					250					3.01	
			34					70					225					3.21	
					248	496	484	631	207	857	1450	1348	1872	603					
N= 34										3.43	3.25	2.89	2.97	2.91					
										I	II	III	IV	V					

= This instrument is scored negatively, e.g. The higher the number wrong the lower is the teacher knowledge of students.

Teacher Knowledge of Students by Design of School

(Compact vs Campus)

School Code Number		Number of Teachers		Total Number Incorrect		Average Number Wrong Answers	
I	II	I	II	I	II	I	II
22	01	107	102	334	375	3.12	3.68
23	02	80	45	326	135	4.08	3.14
33	03	61	71	144	194	3.23	2.73
09	04	68	70	220	230	3.23	3.28
13	05	24	34	69	111	2.88	3.26
14	06	20	66	76	184	3.80	2.79
20	07	76	70	208	225	2.74	3.21
21	08	63	54	163	147	2.59	2.72
25	10	68	42	178	138	2.62	3.29
27	11	82	43	304	100	3.71	2.32
31	12	45	56	132	123	2.93	2.20
	15		20		25		1.25
	16		63		215		3.41
	17		70		177		2.52
	18		30		78		2.60
	19		33		82		2.48
	24		35		105		3.00
	26		51		190		3.72
	28		78		194		2.49
	29		29		87		3.00
	30		87		283		3.25
	32		83		250		3.01
	34		222		71		3.21
		694	1254	2187	3819		
				3.15	2.97		

Teachers' Knowledge of Best Known Students
by Plan of Building Utilization
(SWS vs Subject)

School Code Number		Number of Teachers		Total Number Incorrect		Average Number Wrong Answers	
I	II	I	II	I	II	I	II
02	01	45	102	135	375	3.14	3.68
04	05	70	34	230	111	3.28	3.26
10	08	42	54	138	147	3.29	2.72
12	09	56	68	123	220	2.20	3.23
22	11	107	43	334	100	3.12	2.32
23	13	80	24	326	69	4.08	2.88
24	14	35	20	105	76	3.00	3.80
26	15	51	20	190	25	3.72	1.25
28	16	78	63	194	215	2.49	3.41
30	17	87	70	283	177	3.25	2.52
33	18	61	30	197	78	3.23	2.60
	19		33		82		2.48
	20		76		208		2.74
	21		63		163		2.59
	25		68		178		2.62
	27		82		304		3.71
	29		29		87		3.00
	31		45		132		2.93
	32		83		250		3.01
	34		22		71		3.21
		712	1029	2255	3068		
				3.17	2.98		

Chapter 8

RESULTS OF STUDY: SELF-OTHER ATTITUDES

A basic question of the study was:

> "What relationship, if any, exists between the type of school building and the characteristic attitudes manifested by school personnel toward self and others?"

It was not logical to expect that school building design or plan of building utilization would have a direct bearing upon the attitudes developed and/or maintained by school personnel toward themselves and their peers. It was believed to be logical to assume that building factors could affect the frequency and types of personnel interaction, and that certain types of personnel interaction could, in turn, be related to certain inter-personal attitudes. Of chief concern were those attitudes dealing with self and others, these believed to be basic to other attitudes related to effective inter-personal relations in the school enterprise.

As reported in Chapter 2, personnel attitudes toward self and others were measured by a modified version (and scoring system) of the Bills, Index of Adjustment and Values. The Index produces four classifications for individuals in accordance with the degree to which they report themselves to be "accepting" of self and of other persons, i.e. the extent to which they believe themselves and other persons to be basically worthy human beings. The classifications are:

(1) Those accepting both of self and others, called, "high valuing" individuals and indicated by the symbol (+ +).

(2) Those accepting of self but rejecting of others, called "over-valuing" individuals and indicated by the symbol (+ -)

(3) Those rejecting of both self and others, called "low valuing" individuals and indicated by the symbol (- -).

(4) Those rejecting of self but accepting others, called "under-valuing" individuals and indicated by the symbol (- +).

Of the four types, Bills reports that (+ +) and (- +) individuals tend to be effective in situation which require voluntary cooperative interpersonal relationships such as in administration and teaching. The (+ -) and (- -) individuals are reported to be less likely to be effective, particularly in leadership roles. (+ +) and (- +) individuals are also reported to be better equipped to establish effective peer relationships in work tasks.

If the social climate provided in a secondary school is significant for, and effective with, school personnel, theoretically a greater proportion of (+ +) and (- +) individuals would be expected to appear in that school than either (+ -) or (- -). Also, if a particular type of school (e.g. the Type III Campus: SWS) is more effective than other types in "promoting" effective human relations through certain interaction patterns, a greater proportion of (+ +) and (- +) would logically be found in that type than in others.

For the three groups of school personnel (administrators, teachers and students), the distribution by percent in the four Index classifications is presented in Table H.1.

TABLE H.1

Percent of School Personnel by Self-Other Acceptance Types

Index Type	Principals No.	Principals Percent	Teachers No.	Teachers Percent	Students No.	Students Percent
(+ +)	13	38.2	602	52.1	3011	40.3
(+ -)	19	55.9	460	39.8	2915	39.0
(- -)	0	0.0	10 >	0.9	357 >	4.8
(- +)	2	5.8	84	7.3	1186	15.9
Total	39	99.9	1146a/	100.1	7469	100.0

a/ An additional 33 teachers' responses were not classified since the scores on the "self" inventory did not differ by one-half standard error of measurement from those of the "other" inventory. Similarly, an additional 499 students' responses were not classified.

The (+ +) and (- +) classifications were combined to form a single group whose common characteristic was "peer acceptance". Similarly, the (+ -) and (- -) classifications were combined to form an opposing group with the common charcteristic of "peer rejection". When the "peer acceptance" and "peer rejecting" groups were examined by Chi square, differences were found to be significant at the .01 level. From Table H.2 it is clear that over one-half of the total variance ($X^2 = 14.2200$) can be attributed to the distribution of (+ +) and (- +) types among teachers and a lessor but significant amount to the distribution of (- +) types among students.

TABLE H.2

Chi square Test of Self-Other Acceptance Classifications of School Personnel

Acceptance Types	Principals Observed	Principals Expected	Teachers Observed	Teachers Expected	Students Observed	Students Expected
(a) "Peer Accepting" (+ +) & (- +)	15	(18.7)	686	(635.8)	4197	(4108)
(b) "Peer Rejecting" (+ -) & (- -)	19	(15.3)	470	(520.2)	3272	(3361)

$X^2 = 14.2200$ d.f. 2 $p < .01$

The results of the Chi square test were interpreted as follows:

(1) More teachers of the 34 schools than expected were "peer accepting" and fewer "peer rejecting";

(2) Fewer students of the 34 schools than expected were "peer rejecting";

(3) More administrators of the 34 schools than expected were classified as "peer rejecting". (A thorough analysis of the significance of these classifications among administrators is reported in Lafkiotes, C. James. The Relationship of Perceptual Classification to Principal-Teacher and Principal-Pupil Interaction in Selected High Schools. Doctoral Dissertation, Michigan State University, 1962.)

Differences in classifications of school personnel on the Bills' Index were examined by the four building types. For analysis, twelve sub-hypotheses were tested, four each for administrators, teachers and students.

1. Self-Other Attitudes Among Administrators

The distributions of the Bills Index were examined for the 34 school principals. Four sub-hypotheses related to size of school first were tested. These were:

Hypothesis V-A-1: There is no relationship between size of school and self-other acceptance attributed to principals.

Hypothesis V-A-2: There is no relationship between type of building and self-other acceptance attitudes attributed to principals.

Hypothesis V-A-3: There is no relationship between building design and self-other acceptance attitudes attributed to principals.

Hypothesis V-A-4: There is no relationship between plan of building utilization and self-other acceptance attitudes attributed to principals.

The distribution of self-other types by size of school are presented in Table H.3. Differences in the distributions were found to be not significant by Chi square test, although three of the cells contained fewer than a minimun number of responses and four cells contained no responses. The Chi square test, therefore was made with the "peer accepting" and "peer rejecting" groups combined.

The proportion of "peer accepting" and "peer rejecting" principals were approximately the same in small, medium and large schools, therefore, Hypothesis V-A-1 was accepted.

The data were analyzed also for possible differences by building type, design, and utilization. Because of the small number of respondents in the cells, the specific classifications were again combined into "peer accepting" and "peer rejecting" groups. The results of the Chi square tests are summarized in Table H.4.

TABLE H.3

Classification of Principals by Size of School

Classification	Size of School Small	Medium	Large
(a) "Peer Accepting"			
(+ +)	2	6	5
(- +)	1	0	1
(b) "Peer Rejecting"			
(+ -)	4	8	7
(- -)	0	0	0

X^2 = 0.9430 d.f. = 2 N.S.

TABLE H.4

Classification of Self-Other Acceptance Among Principals by Building Types

Classification	Type of Building Hyp. V-A-2 I	II	III	IV	V	Building Design Hyp. V-A-3 Compact	Campus	Building Utilization Hyp. V-A-4 SWS	Subject
"Peer Accepting"									
(+ +)	0	2	4	4	3	2	11	7	6
(- +)	0	1	0	1	0	1	1	0	2
"Peer Rejecting"									
(+ -)	3	5	4	7	0	8	11	7	12
(- -)	0	0	0	0	0	0	0	0	0

X^2 = 3.0930 d.f. = 4 N.S.; X^2 = 2.375 d.f. = 1 N.S. X^2 = 1.324 d.f. = 1 N.S.

The results presented in Table H.4 clearly indicate that the distribution of principals by self-other acceptance types did not vary among the three building types examined. Hence, Hypotheses V-A-2, V-A-3, and V-A-4 were accepted.

2. Self-Other Attitudes of Teachers

Similar examinations of data for teachers were made by the four building types. Four sub-hypotheses were tested. These were:

Hypothesis V-T-1: There is no relationship between size of school and the self-other acceptance attributed to teachers.

Hypothesis V-T-2: There is no relationship between type of building and self-other acceptance attributed to teachers.

Hypothesis V-T-3: There is no relationship between building design and self-other acceptance attributed to teachers.

Hypothesis V-T-4: There is no relationship between plan of building utilization and self-other acceptance attributed to teachers.

The data presented in Table H.5 were examined by the Chi square test for possible differences by building types among teachers. As indicated in Table H.5 there were no significant differences among the distribution of teachers by size, type, design, or plan of utilization of buildings, hence all four sub-hypotheses were accepted.

TABLE H.5

Classification of Self-Other Acceptance Among Teachers by Building Types

Classification	Size of School			Type of Building					Design		Utilization	
	Hyp. V-T-1			Hyp. V-T-2					Hyp. V-T-3		Hyp. V-T-4	
	S	M	L	I	II	III	IV	V	Co.	Ca.	SWS	Subj.
"Peer Accepting"												
(+ +)	43	236	323	73	134	153	181	61	207	395	287	315
(- +)	5	34	45	5	17	21	32	9	22	62	35	49
"Peer Rejecting"												
(+ -) (- -)	55	172	243	60	116	103	143	48	176	294	211	259
	$X^2 = 9.6671$ d.f. = 6 N.S.			$X^2 = 15.5077$ d.f. = 12 N.S.					$X^2 = 4.2852$ d.f. = 2 N.S.		$X^2 = 1.5510$ d.f. = 2 N.S.	

3. Self-Other Acceptance Among Students

Four sub-hypotheses related to self-other acceptance classifications of student were tested. These were:

Hypothesis V-S-1: There is no relationship between size of school and self-other acceptance attributed to students.

Hypothesis V-S-2: There is no relationship between type of building and self-other acceptance attributed to students.

Hypothesis V-S-3: There is no relationship between building design and self-other acceptance attributed to students.

Hypothesis V-S-4: There is no relationship between plan of building utilization and self-other acceptance attributed to students.

The data were arranged by building types and the Chi square test employed to examine possible differences. As indicated in Table H.6, no significant differences were found among students by size, type, design or by plan of utilization of buildings. Hence, all four sub-hypotheses were accepted.

TABLE H.6

Classification of Self-Other Acceptance Among Students by Building Types

Classification	Hyp. V-S-1 Size of School			Hyp. V-S-2 Type of Building					Hyp. V-S-3 Design		Hyp. V-S-4 Utilization	
	S	M	L	I	II	III	IV	V	Com.	Cap.	SWS	Subject
1) + +	207	1054	1950	399	705	802	832	273	1102	1905	1474	1537
2) + -	214	1005	1696	408	652	771	813	271	1060	1855	1450	1465
3) - -	35	112	210	47	81	90	105	34	128	224	171	186
4) - +	82	403	701	174	252	297	345	118	425	759	588	598
	$X^2 = 5.519$ d.f. = 6 N.S.			$X^2 = 6.1670$ d.f. = 12 N.S.					$X^2 = 0.2564$ d.f. = 3 N.S.		$X^2 = 0.6847$ d.f. = 4 N.S.	

4. Project 1443 Analyses

In order to explore intensively the several variables related to students' attitudes toward self and others, additional funds were made available to the original project under title of Project 1443.

The stratafied-random sample of students was examined for inter-relationships among four factors. These were:

(a) socio-economic level of students,
(b) frequency of student-school official interaction,
(c) students' acceptance of self and others, and
(d) each of the above by the four building type factors.

A. Classifications of Students

Students were classified by each of the factors as follows:

(1) Socio-economic level: students were classified into three groups one-half standard deviation around their mean score on the Duncan index. "High" socio-economic level was assigned to those scoring 59 or above. "Moderate" socio-economic level was given those scoring 35 through 58 on the index; the mean score for all students was calculated at 46. "Low" socio-economic level was attributed to those scoring less than 35 on the index.

(2) Frequency of interaction: students were classified in three groups one-half standard deviation around the mean of scores reported for student-school official interaction. The range of scores produced by the instrument was one to 20. The mean was calculated at 3.86 and the standard deviation, 3.01. "High interactor" was assigned to those scoring above six. "Moderate interactor" was assigned those scoring two through five on the scale. "Low interactor" was assigned those scoring less than two on the scale.

(3) Self-Other acceptance: students were classified according to the four types produced by the Bills Index, previously described.

(4) Building Type Factors: the four factors of building size, design, utilization and type were employed.

B. Analysis I

In the first analysis, the relationship between socio-economic level (SOI), interaction and self-other acceptance (IAV) were examined. The students were first grouped by SOI and the relationships between interaction and self-other acceptance examined within each of the SOI classifications.

Among "low" SOI students a relationship was found between interaction and IAV. In Table H.7, reports indicate that there are more self-accepting (i.e. + + and + -) students than expected among "high" interactors, and fewer self-accepting students among "low" interactors. The difference in distribution among high, medium and low interactors was significant at the .02 level of confidence.

Among students of "moderate" SOI, no significant relationship appeared between interaction and IAV. See Table 1 of Appendix G. There were differences in IAV, however, between high and low interactors among students of high socio-economic status. The results which are reproduced in Table H.8 indicate that high SOI students who are also high interactors tend to be self-accepting (+ + and + -). High SOI students who are low interactors tend to be self-rejecting (- + and - -). The differences in distributions were significant at the .02 level.

TABLE H.7

Distribution of Self-Other Acceptors by Frequency of Interaction Among Students of Low Socio-Economic Status

Interaction Class	Self-Acceptance Class								
	(+ +)		(+ -)		(- -)		(- +)		
	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Total
High	207	(190)	202	(187)	18	(25)	56	(81)	483
Moderate	659	(654)	636	(646)	85	(87)	285	(280)	1665
Low	267	(289)	280	(285)	46	(38)	142	(123)	735
Total	1133		1118		149		483		2883

$X^2 = 13.7450$ d.f. = 6 $p < .02$

TABLE H.8

Distribution of Self-Other Acceptors by Frequency of Interaction Among Students of High Socio-Economic Status

Interaction Class	Self-Acceptance Class								
	(+ +)		(+-)		(- -)		(-+)		
	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Total
High	202	(188)	183	(181)	12	(19)	64	(74)	461
Moderate	632	(630)	613	(605)	68	(63)	230	(247)	1543
Low	239	(257)	237	(247)	27	(26)	126	(101)	629
Total	1073		1033		107		420		2633

$X^2 = 14.9390$ d.f. = 6 $p < .02$

From the evidence presented above, four observations seem warranted:

1. **High SOI students who are high interactors are also self accepting, i.e. (+ +) and (+-).**

2. **Low SOI students who are high interactors are also self-accepting.**

3. **High interacting students are self-accepting; self-accepting students are high interactors.**

4. **High SOI students who are low interactors are also self-rejecting, i.e. (- +) and (- -).**

5. Low SOI students who are low interactors are also self-rejecting.

6. Low interactors are self-rejecting and self-rejecting students are low interactors.

On the basis of these observations, it seems reasonable to conclude that there is a relationship between interaction and self-other acceptance among students regardless of the students' socio-economic status. Alternative hypotheses may then be generated:

(a) Greater student interaction realizes greater self-acceptance;
(b) Self-accepting students tend to interact more frequently with school officials.

If the first alternative hypothesis is valid, there would be a direct design implication inasmuch as frequency of interaction has already been demonstrated to be related to certain building type factors. If the latter alternative is demonstrated to be valid, the probability of influencing attitudes through special grouping of students could explored.

C. Analysis II

Before proceding to analyses by building factors, the relationship between SOI and IAV was examined, when factors of interaction were controlled. The students were devided into three interaction groups and the distribution of high, moderate, and low SOI was examined in relation to the four IAV classifications. The results are presented in detail in Tables 2,3 and 4 of Appendix G. The distributions by SOI among high interactors, moderate interactors and low interactors were essentially the same. The probability of a significantly different distribution did not exceed the .30 level, hence it was concluded that:

> There is no relationship between SOI and IAV regardless of the level of student-school official interaction.

D. Analysis III

The three variables of SOI, IAV and interaction were next examined in relationship to building types. In all previous analyses by building types, size of school was demonstrated to be a major and frequently dominant factor; hence, size of school was examined first.

Students were distributed proportionately by SOI within each school and within the classes of large, medium and small schools. This was accomplished in order to control the factor of SOI while the relationships between interaction and IAV were examined by size of school. Students were then grouped by responses on the interaction scale. Three sub-analyses were made of the distribution of IAV types by size of school for groups of (1) high, (2) moderate and (3) low interactors.

Among low and moderate interactors, there was no significant difference among the distributions of IAV types by large, medium or small schools. Probabilities of difference never exceeded the 0.50 level, hence it was concluded:

> There is no relationship between size of school and IAV types among low and moderate interacting students.

Data are reproduced in Tables 5 and 6 of Appendix G.

From the results presented in Table H.9 below, it is clear, however, that size of school and the distribution of students by IAV is related among high interacting students.

TABLE H.9

Distribution of IAV Types by Size of School
Among High Interactors
(SOI controlled)

Size of School	(+ +) Obs.	(+ +) Exp.	(+ -) Obs.	(+ -) Exp.	(- -) Obs.	(- -) Exp.	(- +) Obs.	(- +) Exp.	Total
Large	286	(288)	269	(272)	23	(25)	93	(86)	671
Medium	184	(156)	125	(147)	14	(13)	40	(46)	363
Small	121	(148)	165	(140)	14	(13)	44	(44)	344
Total	591		559		51		177		1378

$x^2 = 17.3850$ d.f. = 6 $p \angle .01$

Two major observations are warranted.

(1) High interactors in schools of moderate enrollment (i.e. 295 to 464 per grade) are self-other accepting, that is, "high valuing" or (+ +).

(2) High interactors in small schools (106 to 294 per grade) are "over-valuing" of self in relation to others, (+ -).

These observations, of course, are not absolute. They mean simply that, to a degree greater than that warranted by the factor of chance alone, more high valuing (+ +) students among high interactors were found in medium enrollment schools, and more "over-valuing" (+ -) students among high interactors in small schools.

From these observations, it seems reasonable to conclude that:

Regardless of SOI, size of school is related to IAV among high interacting students.

Alternative hypotheses may be advanced. These are:

(a) High interaction of students with school officials in small schools realizes an overvaluing of self in relation to others, among students.

(b) Overvaluing students in small schools tend to interact highly with school officials.

(a) High interaction of students with school officials in medium enrollment schools realizes a high but equal valuing of self in relation to others, among students.

(b) High valuing students in schools of medium enrollment interact highly with school officials.

Since the proportion of school officials in small and medium schools does not vary significantly by IAV types (Table H.3) the personality orientation of the chief school official does not seem to be a factor in this relationship. Hence, Alternatives (b) above and on preceding page would seem to be most productive for further research.

E. Analysis IV

If size of school were the dominant factor in the IAV-interaction relationship, subsequent analyses by building factors of design, utilization and building type would be expected to reflect the influence of the factor of size.

These results would, therefore, be anticipated:

1. Among the small Type IV schools: more overvaluing students among high interactors.
2. Among the medium size, Type II and Type III schools: more high valuing students among high interactors then in Type I, IV, V schools; if the results of the two types were to differ, the slightly smaller Type III schools should report more over valuing student.
3. Among the medium enrollment Campus and Compact schools; no differences in IAV distributions; however, if differences were to appear, the slightly smaller Campus schools should report more over valuing students among high interactors.
4. Among the medium enrollment SWS and Subject-Area schools: no differences in IAV distributions; however, were differences to appear, the slightly smaller Subject-Area schools should report more over valuing students among high interactors.

With these anticipated results in mind, three sub-analyses were conducted: by design of school, by utilization and by building type.

(1) Analysis by School Design

The distributions of IAV types were examined by Compact and Campus buildings among the groups of high, moderate and low interactors. There were no differences in the distributions within the three interaction classes. Probabilities of difference never exceeded the 0.30 level of confidence. Hence, it was concluded that:

School design is not related to IAV regardless of the level of student-school official interaction.

Data are presented in Tables 7,8, and 9 of Appendix G.

(2) Analysis by Building Utilization

The distribution of IAV types was then examined by SWS and Subject-area buildings among the groups of high, moderate and low interactors. No differences were determined among low and moderate level interators. Differences were not significant among high interactors, the probability of differences being less than the 0.10 level of confidence but not the 0.05 level. The direction of these differences appeared to be worthy of examination, however, but they were the same as those predicted by the factor of school size. In Table H.10, the number of overvaluing (+ -) students observed among students of SWS was less than that expected. Concomitantly, the number of overvaluing (+ -) students among students of Subject-area schools was larger than expected. Since the class of SWS schools are larger than that of subject area schools, the results are about equal to those predicted from the analysis by size of school. Hence, it is concluded that:

> There is no relationship between plan of building utilization and IAV types among students regardless of the level of student-school official interaction.

TABLE H.10

Distribution of IAV Types by Plan of Building Utilization Among High Interactors

Utilization	Type by IAV								
	(+ +)		(+ -)		(- -)		(- +)		
	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Total
SWS	267	(256)	220	(243)	25	(22)	86	(77)	598
Subject-Area	324	(335)	339	(317)	26	(29)	91	(100)	780
Total	591		559		51		177		1378

$x^2 = 71340$ d.f. = 3 $p < .10$

(3) Analysis by Building Types

The distribution of IAV types was examined by types of buildings, among the groups of high, moderate and low interactors. No differences were observed among low and moderate interactors. These data are reproduced in Tables 10 and 11 of Appendix G.

Differences were observed in the distribution among high interacting students although the probability of significance was not less than the .05 level of confidence. The information is reproduced in Table H.11.

TABLE H.11

Distribution of IAV Types Among High Interactors by Type of Building

Type of Building	IAV Type (+ +) Obs.	Exp.	(+ -) Obs.	Exp.	(- -) Obs.	Exp.	(- +) Obs.	Exp.	Total
I	65	(68)	61	(65)	6	(6)	27	(20)	159
II	144	(136)	123	(128)	10	(12)	39	(40)	316
III	202	(188)	159	(178)	19	(16)	59	(56)	439
IV	132	(154)	173	(146)	11	(13)	44	(46)	360
V	48	(45)	43	(42)	5	(4)	8	(13)	104
Total	591		559		51		177		1378

$X^2 = 19.3790$ d.f. = 12 $p < .10$

Several observations may be made from Table H.11. These are:

(1) More high valuing students than expected appear in Type III schools than in the larger, Type I and Type V and the smaller, Type IV schools, and fewer overvaluing students.

(2) Fewer high valuing students than expected appear in Type IV schools and more overvaluing students.

(3) Differences in the distributions of Type I, II and V schools are not discernible.

The apparent differences between IAV distributions of Type III and Type IV schools are readily accounted for by the difference in the size of schools in these two types. Type III schools were generally moderate in enrollment, hence, were expected to demonstrate a greater proportion of high valuing to overvaluing students. Type IV schools were generally small schools, hence they were expected to demonstrate a greater proportion of overvaluing to high valuing students.

However, Type II schools are also of moderate size, yet there is no discernible direction in their distribution of IAV types. If size of school were the dominant--or sole--factor affecting the IAV distribution, there should not have been any differences produced in the IAV distributions between the Type II and Type III schools. Clearly, however, there is. Hence, the possibility that building type--independent of the factor of school size--may be related to IAV among high interactors cannot be discarded. Two possibilities may be considered:

(a) The Type III building is positively related to high valuing among high interacting students, and negatively related to overvaluing among students; hence, the predicted results by size of school were reinforced;

(b) The Type II building is negatively related to high valuing among high interacting students and positively related to overvaluing among students; hence, the predicted results by size of school were nullified, although not reversed.

Since the Type II and Type III building types are factorial opposites: that is, Type II is a Compact: Subject Area building and the Type III is a Campus; SWS building, the possibilities deserve further investigation.

5. Degree of Integratedness of the School

In an endeavor to provide a global differentiation among the several types of schools, an analysis was conducted which purported to measure the degree of integratedness of the school, that is: the degree to which a school consistently served as a significant social system for its students in a variety of ways. It was assumed that: if the school were in fact a significant source of important social interactions for its personnel, the student and teacher would seek his principal interactions consistently with school related personnel.

These factors were then intercorrelated:

(a) Sources of peer friendships
(b) Sources of adult friendships
(c) Frequency of interaction
(d) General sources of help
(e) Faculty sources of help
(f) Peer sources of help
(g) Teacher knowledge of students
(h) Sources of best known friend.

Messier[1] grouped scores on each of these factors into groups of High and Low, and assimilated the information for each school. His results are reproduced in Table H.12.

Those schools which evidenced five or more "high" scores among the eight social interaction variables were called, "integrated". Those which scored high on less than five of the eight factors were classified, "non-integrated." The distributions of "integrated" and "non-integrated" schools were then examined by the four building factors.

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[1] Messier, Paul R. Social Interaction Patterns and Occupational Aspirations of Selected High School Students. PhD Thesis, Michigan State University, 1961. pp. 94-105.

TABLE H.12

Social Interaction Factors

School Number	Sources of Best Known Students	Sources of Adult Friends	General Sources of Help	Student Sources of Help	Faculty Sources of Help	Sources of Peer Friends	Teacher Knowledge	Frequency of interaction
1	H	L	H	L	H	H	H	L
2	H	L	H	H	H	H	H	H
3	H	L	L	L	L	H	L	H
4	H	L	L	L	L	H	H	L
5	L	H	L	L	L	H	H	H
6	L	H	L	H	L	H	L	L
7	H	H	H	L	H	L	H	L
8	H	H	H	L	H	L	L	H
9	L	L	L	H	L	L	H	L
10	H	H	H	H	H	L	H	H
11	L	H	L	L	L	H	L	H
12	L	H	L	H	L	H	L	L
13	L	H	H	L	H	H	L	H
14	L	L	H	H	H	H	H	H
15	L	H	H	H	H	H	L	H
16	H	H	L	H	L	L	H	L
17	H	L	L	H	L	L	L	L
18	H	L	H	L	H	L	L	L
19	L	L	L	L	H	H	L	H
20	L	H	L	L	H	H	L	H
21	H	H	L	H	L	H	L	H
22	H	H	H	H	L	H	H	L
23	H	L	L	H	L	H	H	L
24	L	L	L	L	H	L	H	H
25	H	L	L	H	L	L	L	H
26	L	L	L	L	H	H	H	H
27	L	L	H	H	L	L	H	L
28	L	L	H	L	H	L	L	H
29	L	H	H	L	H	H	H	H
30	L	L	L	L	H	L	H	H
31	L	H	H	H	H	H	L	H
32	H	H	H	L	H	H	L	L
33	L	H	H	H	H	H	L	H
34	H	L	L	L	L	H	H	H

Note: "H" stands for high and "L" stands for low.

Reproduced from Table VIII, Social Interaction Patterns and Occupational Aspirations of Selected High School Students. Paul R. Messier. PhD Thesis. Michigan State University, 1961. p.97.

(1) Size of School and Degree of Integratedness

When the 34 schools were divided into groups by size of school, differences among the proportion of "integrated" and "non-integrated" schools were found to be significant at the .05 level. Data are presented in Table H.13 below.

TABLE H.13

Distribution of Integrated and Non-Integrated Schools
by School Size

Size of School	Integrated Obs.	Integrated Exp.	Non-Integrated Obs.	Non-Integrated Exp.	Total
Large	3	(5.73)	10	(7.27)	13
Moderate	6	(3.53)	2	(4.47)	8
Small	6	(5.73	7	(7.27)	13
Total	15		19		34

$X^2 = 7.3170$ d.f. = 2 $p < .05$

The small number of cases in two of the cells made interpretation precarious. However, it can be observed that:

(a) Fewer of the large schools than expected were classified as "integrated", while more than expected were "non-integrated."

(b) More of the moderate enrollment schools than expected were classified "integrated", and fewer "non-integrated."

(c) No differences were discernible in the distribution of small schools.

On the basis on these observations, it seems reasonable to hypothesize that:

> Size of school is inversely related to the degree of integratedness of the school.

Specifically, it may be hypothesized that:

Large schools are less integrated (that is, they are generally less significant as a social system for their personnel) and schools of moderate size are more integrated.

(2) School Integratedness and Building Factors

When the schools were distributed by design, utilization and building type factors, no differences were discerned in their degree of integratedness. Hence, it was concluded:

(a) There is no relationship between school design and the degree of school integratedness.

(b) There is no relationship between plan of school utilization and the degree of school integratedness.

Data for these last examinations are presented in Tables 12,13 and 14 of Appendix G.

6. Summary and Conclusions

In this chapter, relationships between building factors and certain interpersonal attitudes of school personnel were examined. Twelve hypotheses were tested and five major analyses reported.

It was hypothesized that:

> There is no relationship between building type factors and self-other acceptance among three groups of school personnel.

Twelve sub-hypotheses were examined as a basis for testing the general null hypothesis. All were accepted. These are summarized in Table H.14 below.

TABLE H.14

Summary of Tests of Hypotheses Related To Self-Other Acceptance Among School Personnel

Personnel	Hypothesis	Factor	Accepted
Principals	V-A-1	Size of School	X
Principals	V-A-2	Type of Building	X
Principals	V-A-3	Building Design	X
Principals	V-A-4	Utilization	X
Teachers	V-T-1	Size of School	X
Teachers	V-T-2	Type of Building	X
Teachers	V-T-3	Building Design	X
Teachers	V-T-4	Utilization	X
Students	V-S-1	Size of School	X
Students	V-S-2	Type of Building	X
Students	V-S-3	Building Design	X
Students	V-S-4	Utilization	X

It was observed, however, that the distribution of IAV types did differ among students, teachers and principals, when these groups were compared. By and large, teachers and students were found to be self-accepting and a majority, peer accepting. The proportion of peer rejecting principals, however, was higher than expected.

Several intensive analyses of student responses were also conducted to explore relationships among the variables of (a) socio-economic class, (b) interaction with school officials, and (c) self-other acceptance. These were examined independently of building factors, and against each building factor.

On the basis of these analyses, it was concluded:

(1) There is a relationship between interaction and self-other acceptance among students regardless of their socio-economic status. Specifically,

   (a) high interacting students are self-accepting;
   (b) low interacting students are self-rejecting.

(2) There is no relationship between students' socio-economic status and self-other acceptance, regardless of students' level of interaction.

(3) Among high interacting students, size of school is related to self-other acceptance. Specifically,

   (a) High interaction in schools of medium enrollment is positively related to high valuing of self and others.

   (b) High interaction in schools of small enrollment is positively related to over valuing of self in relation to others.

   (c) No relationships could be discerned in schools of large enrollment.

(4) Among high interacting students, there is a positive relationship between Type III buildings and the number of high valuing students; however, the factor of size cannot be separated from this analysis.

(5) Among high interacting schools, there is a positive relationship between Type IV buildings and the number of over valuing students; however, the factor of school size cannot be separated from this analysis.

In view of these conclusions, the general hypothesis can be advanced that:

> Size of school is significantly related to certain interpersonal attitudes among high interacting students, regardless of the socio-economic status of students.

In a final analysis, the extent to which schools are integrated (that is, constitute a measurable and relatively self-contained social system) was examined. It was generally determined that:

(a) Factors of building type, design and plan of utilization are not significantly related to the degree of integratedness of school; that is to say, there is no evidence in this study to support a contention that one type of school or another provides a more integrated social environment for secondary school students.

(b) School size, however, is related to degree of integratedness; specifically:

(1) schools of moderate enrollment tend to be most integrated;
(2) schools of large enrollment tend to be least integrated;
(3) schools of small enrollment occupy a median position in the scale of integratedness.

APPENDIX G

Reference Tables and Materials

For Use With
Chapter 8

TABLE 1

Distribution of IAV Types By Levels of Interaction Among Middle Socio-Economic Level Students

Level of Interaction	IAV Types (+ +)	(+ -)	(- -)	(- +)	Total
High	181	171	21	57	430
Medium	595	580	70	212	1457
Low	214	206	36	91	547
Total	990	957	127	360	2434

$X^2 = 5.1570$ d.f. = 6 $p > .50$

TABLE 2

Distribution of IAV Types Among High Interactors by Socio-Economic Level

SOI	IAV Types (+ +)	(+ -)	(- -)	(- +)	Total
High	202	183	12	64	461
Medium	181	171	21	57	430
Low	207	202	18	56	483
Total	590	556	51	177	1374

$X^2 = 4.9310$ d.f. = 6 $p > .50$

G.3

TABLE 3

Distribution of IAV Types Among Moderate Interacting Students by Socio-economic Level

SOI	IAV Types (+ +)	(+ -)	(- -)	(- +)	Total
High	632	613	68	230	1543
Medium	595	580	70	212	1457
Low	659	636	85	285	1665
Total	1886	1829	223	727	4665

$X^2 = 5.8340$ d.f. = 6 $p > .30$

G.4

TABLE 4

Distribution of IAV Types Among Low Interacting Students by SOI

SOI	IAV Types (+ +)	(+ -)	(- -)	(- +)	Total
High	239	237	27	126	629
Medium	214	206	36	91	547
Low	267	280	46	142	735
Total	720	723	109	359	1911

$X^2 = 6.7340$ d.f. = 6 $p > .30$

G.5

TABLE 5

Distribution of IAV Types Among Moderate Interacting Students by Size of School

Size of School	IAV Type (+ +)	(+ -)	(- -)	(- +)	Total
Large	1128	1075	140	438	2781
Medium	404	426	44	155	1029
Small	362	330	39	134	865
Total	1894	1831	223	727	4675

$X^2 = 3.8160$ d.f. = 6 $p > .50$

G.6

TABLE 6

Distribution of IAV Types Among Low Interacting Students by Size of School

Size of School	IAV Type (+ +)	(+ -)	(- -)	(- +)	Total
Large	445	432	62	218	1157
Medium	131	152	22	66	371
Small	145	143	25	75	388
Total	721	727	109	359	1916

$X^2 = 2.7260$ d.f. = 6 $p > .80$

G.7

TABLE 7

Distribution of IAV Types Among High Interacting Students by Design of School

	Design of School				
Design	(+ +)	(+ -)	(- -)	(- +)	Total
Compact	209	184	16	66	475
Campus	382	375	35	111	903
Total	591	559	51	177	1378

$X^2 = 1.6510$ d.f. = 3 $p > .50$

G.8

TABLE 8

Distribution of IAV Types Among Moderate Interacting Students by Design of School

	Design of School				
Design	(+ +)	(+ -)	(- -)	(- +)	Total
Compact	703	691	91	274	1759
Campus	1191	1140	132	453	2916
Total	1894	1831	223	727	4675

$X^2 = 1.1850$ d.f. = 3 $p > .70$

G.9

TABLE 9

Distribution of IAV Types Among Low Interacting Students by Design of School

	Design of School				
Design	(+ +)	(+ -)	(- -)	(- +)	Total
Compact	279	276	36	123	714
Campus	442	451	73	236	1202
Total	721	727	109	359	1916

G.10

TABLE 10

Distribution of IAV Types Among Moderate Interacting Students by Type of Building

Building Type	Type of Building (+ +)	(+ -)	(- -)	(- +)	Total
I	247	257	29	103	636
II	456	434	62	171	1123
III	489	488	53	172	1202
IV	542	489	60	209	1300
V	160	163	19	72	414
Total	1894	1831	223	727	4675

$X^2 = 7.6210$ d.f. = 12 $p > .80$

G.11

TABLE 11

Distribution of IAV Types Among Low Interacting Students by Type of Building

Building Type	Type of Building (+ +)	(+ -)	(- -)	(- +)	Total
I	97	109	13	52	271
II	182	167	23	71	443
III	170	187	25	85	467
IV	203	196	38	110	547
V	69	68	10	41	188
Total	721	727	109	359	1916

$X^2 = 9.0360$ d.f. = 12 $p > .50$

G.12

TABLE 12

School Integratedness
by Type of Building

Building Type	Integrative	Non-Integrative	Total
I	2	1	3
II	4	4	8
III	3	5	8
IV	5	7	12
V	1	2	3
Total	15	19	34

$X^2 = 0.9760$ d.f. = 4 $p > .90$

G.13

TABLE 13

School Integratedness
by School Design

Building Design	Integrative	Non-Integrative	Total
Compact	6	6	12
Campus	9	13	22
Total	15	19	34

$X^2 = 0.0260$ d.f. = 1 $p > .90$

TABLE 14

School Integratedness by Plan of Building Utilization

Plan of Utilization	Integrative	Non-Integrative	Total
SWS	5	6	11
Subject	9	11	20
Total	14	17	31

$X^2 = 0.0004$ d.f. = 1 $p > .95$

Chapter 9

SCHOOL PERSONNEL'S INSTITUTIONAL ACCEPTANCE

A second personnel attitude examined in relation to building type factors was the degree of acceptance by school administrators and teachers of sixteen selected characteristics of their schools. Personnel were asked two basic questions concerning each of the sixteen characteristics.[1] These were:

(1) How much of the time is this characteristic adequate in your school?
(2) How do you feel about the adequacy of this characteristic in your school?

The range of responses allowed by the institutional acceptance instrument for each question was:

(1) "Rarely" to "Most of the time," and
(2) "Very much dislike" to "Very much like."

Responses were scored in accordance with a weighted scale (one to five) and a range of total scores tabulated from zero to eighty. The results of the two scales among administrators were highly correlated (r=.6841). Similar results were obtained from teacher scores on the two scales (r=.6311) hence, the two scales were combined into a single instrument consisting of 32 responses weighted each, one to five. The following null hypotheses were tested:

Hypothesis: VI-A-1: There is no relationship between building types and the level of administrators' acceptance of the schools.

Hypothesis: VI-T-1: There is no relationship between building types and the level of teachers' acceptance of their schools.

The mean scores of administrators (131.8 of 160) differed significantly over all items from that of teachers (128.6 of 160). There were no significant differences reported, however, among groups of administrators. These results are presented in Table I.1.

TABLE I.1

Mean Scores of Administrators and Teachers:
Index of Institutional Acceptance

Personnel	N	Mean Score
Principals	34	131.2
Vice Principals	36	131.8
Counselors	83	132.0
Teachers	1189	128.6

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[1] See Chapter 2.14 for description of the Institutional Index (IIV).

In order to test the general null hypotheses, 16 sub-hypotheses were examined, 12 concerning administrators' level of institutional acceptance and four that of teachers.

1. Administrators' Institutional Acceptance

Four sub-hypotheses were examined for each of three groups of school administrative personnel. These were:

Hypothesis VI-A-2: There is no relationship between size of school and the level of institutional acceptance reported by administrators.

Hypothesis VI-A-3: There is no relationship between type of building and the level of institutional acceptance reported by administrators.

Hypothesis VI-A-4: There is no relationship between building design and the level of institutional acceptance reported by administrators.

Hypothesis VI-A-5: There is no relationship between plan of building utilization and the level of institutional acceptance reported by administrators.

The responses of administrators were sorted into two groups. First, those whose scores exceeded that of the mean score for the group as a whole. These were called, "high" accepters. Those with scores below the mean for the group as a whole were entitled, "low" accepters. Comparisons were made between the number of "high" and "low" accepters among three classes of administrators, namely: principals, vice-principals and counselors. The results of the Chi square tests of differences are reproduced in Table I.2.

TABLE I.2

Number of High and Low Institutional Accepters Among Three Classes of School Personnel by Size of School

Hyp.	Personnel	Level of Acceptance	Size of School Small	 Medium	 Large	Significance
VI-A-2(a)	Principals	Low	6	7	4	$X^2 = 5.5410$
		High	2	8	10	d.f. 2 $p < .025$
VI-A-2(b)	Vice Principals	Low	1	5	11	$X^2 = 1.1530$
		High	1	9	9	d.f. N.S.
VI-A-2(c)	Counselors	High	6	17	16	$X^2 = 0.8500$
		Low	4	22	18	d.f. 2 N.S.
	All Personnel	High	13	29	31	$X^2 = 0.0700$
		Low	7	39	37	d.f. 2 N.S.

No significant differences were reported among the distributions of administra tors when all classes of administrators were combined. Differences among vice-principals and among counselors were not found to be significant. However, more principals than expected in larger schools were reported to be "high" accepters and fewer in small schools. The difference was significant at the .025 level.

On the basis of the test results, therefore, sub-hypothesis VI-A-2(a) was rejected and sub-hypotheses VI-A-2(b) and VI-A-2(c) accepted.

Chi square tests were also employed to examine the sub-hypotheses related to type of building, design and plan of building utilization. Differences in distributions by building design and utilization were found to be not significant. Therefore, hypotheses VI-A-4 and VI-A-5 were accepted. Data are reproduced in Tables 4,5,6 aad 7 of Appendix H.

The Chi square test could not be employed in two of the sub-hypotheses of Hypothesis V-A-2 because of the small number of responses in some of the Chi square table cells. The distributions are reproduced in Table 1 and Table 2 of Appendix H respectively. The distribution of responses of counselors was tested, however, and no significant differences reported.

It was concluded, therefore, that administrators generally do not differ in the level of their acceptance of their institutions by building types. The one exception was that of principals who were reported to be more accepting of their institution in large than in small schools.

2. Teachers' Acceptance of Institution

Four sub-hypotheses concerning the level of teachers' acceptance of their schools were examined. These were:

Hypothesis VI-T-2: There is no relationship between size of school and the level of teachers' acceptance of their institution.

Hypothesis VI-T-3: There is no relationship between type of building and the level of teachers' acceptance of their institution.

Hypothesis VI-T-4: There is no relationship between building design and the level of teachers' acceptance of their institution.

Hypothesis VI-T-5: There is no relationship between plan of building utilization and the level of teachers' acceptance of their institution.

Each sub-hypothesis was examined by the Chi square test. Results are summarized in Table I.3. The data there presented indicate that the four sub-hypotheses were valid. The distribution of high and low accepters among teachers was not discernibly different among schools of varying size, building design or plan of building utilization. A significant difference was found in the distribution by type of building. The major difference lay in the Type V school. This accounted for over one-half the total variance. Differences among the 31 schools of the four basic building types were not significant, hence sub-hypothesis VI-T-3 also was accepted.

TABLE I.3

Number of High and Low Institutional Acceptors
Among Teachers by Building Types

Level of Acceptance	Hyp. VI-T-2 Size of School			Hyp. VI-T-3 Type of Building					Hyp. VI-T-4 Build. Design		Hyp. VI-T-5 Utilization	
	Sm.	Md.	Lg.	I	II	III	IV	V	Co.	Ca.	SWS	Subj.
High	60	231	319	79	122	145	187	76	201	408	224	309
Low	44	223	306	63	149	137	174	50	212	361	200	323
Significance	X^2 = 1.7570 d.f. 2 N.S.			X^2 = 12.4397 d.f. 4 p .025					X^2 = 2.1310 d.f. 1 N.S.		X^2 = 2.6010 d.f. 1 N.S.	

3. Summary and Conclusions

When the attitudes of administrators and teachers toward sixteen selected characteristics of their schools were examined, few differences by building types were discernible. Of 16 sub-hypotheses tested only two were rejected at an appropriate level of significance. Differences were observed among the responses of teachers in Type V schools and among principals in large schools. Results of the tests of the various hypotheses are presented in Table I.4.

TABLE I.4

Summary of Results of Tests of Hypotheses Related to Degree of Institutional Acceptance by Teachers and Administrators

Personnel	Hypothesis	**Factor**	Accepted	Rejected	Level
Administrators	VI-A-1(general)	Building Type	X		
Principals	VI-A-2(a)	Size of School		X	.01
Vice-Principals	VI-A-2(b)	Size of School	X		
Counselors	VI-A-2(c)	Size of School	X		
Principals	VI-A-3(a)	Type of Building	(Not Testable)		
Vice-Principals	VI-A-3(b)	Type of Building	(Not Testable)		
Counselors	VI-A-3(c)	Type of Building	X		
Principals	VI-A-4(a)	Building Design	X		
Vice-Principals	VI-A-4(b)	Building Design	X		
Counselors	VI-A-4(c)	Building Design	X		
Principals	VI-A-5(a)	Utilization	X		
Vice-Principals	VI-A-5(b)	Utilization	X		
Counselors	VI-A-5(c)	Utilization	X		
Teachers	VI-T-1(general)	Building Types	X		
Teachers	VI-T-2	Size of School	X		
Teachers	VI-T-3	Type of Building		X	.025
Teachers	VI-T-4	Building Design	X		
Teachers	VI-T-5	Utilization	X		

Note: "Not Testable" indicates that the Chi square test was not performed because of a preponderance of cells with fewer than three responses.

APPENDIX H

Reference Tables and Materials

For Use With
Chapter 9

TABLE 1

Number of High and Low Accepters Among Principals by Type of Building

Level of Acceptance	Type of Building					
	I	II	III	IV	V	Total
Low	1	2	5	7	2	17
High	2	7	4	6	1	20
Total	3	9	9	13	3	37

Note: The distribution is not testable by Chi square because of the great number of cells with fewer than three responses.

TABLE 2

Number of High and Low Accepters Among Vice Principals by Type of Building

Level of Acceptance	Type of Building					
	I	II	III	IV	V	Total
Low	3	4	5	5	0	17
High	0	5	5	6	3	19
Total	3	9	10	11	3	36

Note: The distribution is not testable by Chi square because of the great number of cells with less than three responses.

H.3

TABLE 3

Number of High and Low Accepters Among Counselors by Type of Building

Level of Acceptance	Type of Building I	II	III	IV	V	Total
Low	6	8	7	14	4	39
High	9	14	5	11	5	44
Total	15	22	12	25	9	83

X^2 = 2.7540 d.f. = 4 Not Significant

H.4

TABLE 4

Number of High and Low Accepters Among Principals by Building Design

Level of Acceptance	Building Design Compact	Campus	Total
Low	3	13	16
High	9	11	20
Total	12	24	36

X^2 = 2.4517 d.f. = 1 Not Significant

TABLE 5

Number of High and Low Accepters Among Vice-Principals by Building Design

Level of Acceptance	Building Design Compact	 Campus	 Total
Low	7	7	14
High	5	14	19
Total	12	21	33

$X^2 = 2.2250$ d.f. = 1 Not Significant

TABLE 6

Number of High and Low Accepters Among Counselors by Building Design

Level of Acceptance	Building Design Compact	 Campus	 Total
Low	14	23	37
High	23	20	43
Total	37	43	80

$X^2 = 1.9410$ d.f. = 1 Not Significant

H.7

TABLE 7

Number of High and Low Accepters Among Administrators by Plan of Building Utilization

Hypothesis	Personnel	Acceptance	Plan of Building Util.		Significance
			SWS	Subject	
VI-A-5(a)	Principals	High	5	9	$X^2 = 0.0400$ d.f. 1
		Low	7	13	N.S.
VI-A-5(b)	Vice-Principals	High	5	9	$X^2 = 0.5200$ d.f. 1
		Low	5	11	N.S.
VI-A-5(c)	Counselors	High	11	22	$X^2 = 0.0800$ d.f. 1
		Low	13	25	N.S.

Chapter 10

PERSONNEL ATTITUDES TOWARD SCHOOL DESIGN

The specific attitude examined in this study was the supposed suitability of the building for human occupancy. An instrument was employed which purported to measure the "human qualities" of the building. (See "Building Aesthetic Scale", Appendix A.)

Specifically, teachers and administrators were asked to rate their building on a series of nineteen paired adjectives, half of which related to certain "human" qualities which could be attributed to their school building. They were asked to decide whether their building was warm, youthful, comfortable, interesting, friendly, residential, strong, good, bright, colorful, clean, different, artistic, active, soft, restful, convenient, residential and considerate; or whether they perceived it to be uninviting, adultlike, uncomfortable, uninteresting, unfriendly, factorylike, weak, bad, dim, drab, dirty, indistinguishable, clumsy, passive, hard, tiring, inconvenient, institutional and indifferent. (For description of the instrument, see Chapter 2 and Appendix A).

The instrument was scored negatively; that is, the number of wrong ("non-human") responses were scored, hence the higher the score the less human the building was reported to be. Responses were analyzed for all administrators and teachers.

1. Administrator Attitudes Toward School Design

In order to examine data from administrators, a general null hypothesize was tested. This was:

Hypothesis VII-A-1: There is no relationship between building type factors and the degree of humanness attributed to school buildings by administrators.

Four sub-hypotheses were examined as a means of testing the general null hypothesis. These were:

Hypothesis VII-A-2: There is no relationship between size of school and the degree of humanness attributed to the school building by administrators.

Hypothesis VII-A-3: There is no relationship between school design and the degree of humanness attributed to the school building by administrators.

Hypothesis VII-A-4: There is no relationship between plan of school utilization and the degree of humanness attributed to the school building by administrators.

Hypothesis VII-A-5: There is no relationship between type of building and the degree of humanness attributed to the school building by administrators.

The responses of administrators were divided into two groups for analysis: (1) those who had assigned two or less non-human qualities to their buildings and (2) those who had attributed three or more non-human qualities to their buildings. The results of the distributions which are summarized in Table J.1 indicate that there were no significant differences among administrators in relation to any of the four building type factors. Hence, Hypothesis VII-A-1 and the four supporting sub-hypotheses were accepted. In other words, there were no differences in the perceptions of administrators as to the "human" qualities of their buildings. By and large, administrators viewed their buildings as being aesthetically satisfying.

TABLE J.1

Attitudes of Administrators [3] Toward
Their School Buildings

	Building Type		Design		Utilization		Size	
Attitude	I, III, V	II, IV	Compact	Campus	SWS	Subj.	Med.	Large
Positive[1]	38	47	15	29	16	23	29	17
Negative[2]	29	31	46	59	29	66	71	57
Total	67	78	61	88	45	89	100	74

[1] Less than three "non-human" responses
[2] Three or more "non-human" responses
[3] Includes principals, vice-principals and counselors

2. Teacher Attitudes Toward School Design

In similar manner, the teachers' attitudes toward their buildings were examined. The general null-hypothesis was:

Hypothesis VII-T-1: There is no relationship between building type factors and the degree of humanness attributed to school building by teachers.

Four sub-hypotheses were examined as a means of testing the general null-hypothesis. These were:

Hypothesis VII-T-2: There is no relationship between size of school and the degree of humanness attributed to the school building by teachers.

Hypothesis VII-T-3: There is no relationship between school design and the degree of humanness attributed to the school building by teachers.

Hypothesis VII-T-4: There is no relationship between plan of building utilization and the degree of humanness attributed to the school building by teachers.

Hypothesis VII-T-5: There is no relationship between building type and the degree of humanness attributed to the school building by teachers.

The mean response of teachers was 4.45 (i.e. an average of 4.45 "non-human" responses from a total of 19 possible choices.) The teachers' responses were divided into two groups: (1) those who indicated less than five "non-human" qualities and (2) those who attributed five or more "non-human" qualities to their building.

When the data were examined by size of school, no differences among teachers were encountered. Data are presented in Table 4 of Appendix I.

No differences were encountered among teachers when data were examined by school design. See Table 2 of Appendix I.

However, differences were encountered among teachers when the data were examined by plan of building utilization and by type of school. 548 of 635 teachers in Subject-area schools attributed less than five negative qualaties to their school building while only 324 of 421 teachers of SWS types did so. The difference was significant at the .01 level of confidence. Data are presented in Table 3 of Appendix I.

As anticipated from the results of tests by Building Utilization, the teachers of the Type I and Type III buildings attributed less "humanness" to their buildings than teachers of other types of schools. (Both Type I and Type III schools are SWS) while the mean response of all teachers was 4.45, teachers in Type I and Type III responded with average scores of 4.58 and 4.92 respectively; teachers in Type V schools responded with an average score of 4.02. The differences in the extremes of responses was significant. See Table 1 of Appendix I. Hence, it may be concluded that the factors of building type and of plan of building utilization were related to the degree of humanness attributed to the school building by these teachers. Accordingly, Hypothesis VII-T-1 was rejected, although sub-hypotheses VII-T-2 and VII-T-3 were accepted.

3. Summary and Conclusions

Ten hypotheses were examined in an endeavor to determine relationships between building type factors and the degree of humanness attributed to the school building by school personnel. Of the ten hypotheses, seven were accepted and three rejected. These are summarized in Table J.2 below.

TABLE J.2

Summary of Tests of Hypotheses

Hypothesis	Subject	Accepted	Rejected	Sign.
VII-A-1	General	X		
VII-A-2	Size of School	X		
VII-A-3	School Design	X		
VII-A-4	Utilization	X		
VII-A-5	Type of Building	X		
VII-T-1	General		X	
VII-T-2	Size of School	X		
VII-T-3	School Design	X		
VII-T-4	Utilization		X	.01
VII-T-5	Type of Building		X	.01

APPENDIX I

Reference Tables and Materials

For Use With
Chapter 10

TABLE 1

Teacher Perception of Building Aesthetic Qualities (B.A.S.) by Type of School

	Type					
	I	II	III	IV	V	Total
Four or less (positive)	112	241	212	307	114	986
Five or more (negative)	31	31	66	56	11	195
Total	143	272	278	363	125	1181

$X^2 = 24.1356$ d.f. = 4 $p < .01$

TABLE 2

Teacher perception of Building Aesthetic Qualities (B.A.S.) by Design of Building

	Design		
	I	II	Total
Four or less (positive)	353	633	986
Five or more (negative)	62	133	195
Total	415	766	1181

$X^2 = 1.194$ d.f. = 1 $p > .05$

I.3

TABLE 3

Teacher Perception of Building Aesthetic Qualities (B.A.S.) by Utilization of Building

	Utilization		
	SWS	Subject	Total
Four or less (positive)	324	548	872
Five or more (negative)	97	87	184
Total	421	635	1181

$X^2 = 14.937$ d.f. = 1 $p < .01$

I.4

TABLE 4

Teacher Perception of Building Aesthetic Qualities (B.A.S.) by Size of School

	Size			
	Small	Med.	Large	Total
Four or less (positive)	83	392	511	986
Five or more (negative)	21	61	113	195
Total	104	453	624	1181

$X^2 = 5.561$ d.f. = 2 $p > .05$